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Bulletin No. 189

REPORT ON AN ESKIMO UMIK
BUILT AT IVUYIVIK, P.Q.,
IN THE SUMMER OF 1960

By

E. Y. Arima

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DEPARTMENT OF NORTHERN AFFAIRS AND NATIONAL RESOURCES
CANADA

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REPORT ON AN ESKIMO UMIK



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ANTHROPOLOGICAL SERIES No. 59

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E. Y. Arima

Issued under the authority of
THE HONOURABLE ARTHUR LAING, P.C., M.P., B.S.A.
Minister of Northern Affairs and National Resources

DEPARTMENT OF NORTHERN AFFAIRS AND NATIONAL RESOURCES
OTTAWA

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Published by
ROGER DUHAMEL, F.R.S.C.
Queen's Printer and Controller of Stationery
Ottawa, Canada
1963

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Catalogue No. R93-189

Price subject to change without notice

Issued under the authority of
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Minister of Northern Affairs and National Resources

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REPORT ON AN ESKIMO UMIK BUILT AT IVUYIVIK, P.Q., IN THE SUMMER OF 1960

PART I

GENERAL INTRODUCTION TO UMIKs

(This section is written to introduce umiaks to readers unfamiliar with them and to provide a basis for evaluating the authenticity of the Ivuyivik boat. Published accounts are quoted liberally, partly in the hope of helping interested students.)

In the summer of 1960 a Labrador Eskimo *umiak*, a large open skin-covered boat, was built at Ivuyivik,¹ on the northwest tip of Quebec province, for the National Museum of Canada. It was difficult to find an Eskimo in Canada today who knew how to construct an umiak. After many inquiries, Asen Balikci, who was with the Museum at the time, found a man, Ainalik, E9-982, of Ivuyivik, who was willing to assume responsibility for making an umiak (1961: 58-9). Ainalik was assisted by Iyaitok, E9-963, and Oshuadjuk, E9-998, particularly in the construction of the framework. Many others of the Ivuyivik community co-operated in the gathering of raw materials and the covering of the boat. At Sugluk, a neighbouring settlement, a boat-building consultant was available in Tayara, E9-1164, who, in his younger days, had seen many umiaks of the Hudson Strait, and, indeed, had owned one. However, not being an able craftsman like Ainalik, old Tayara did not want to try to build an umiak himself.

When finished, the Ivuyivik umiak (specimen IV-B-766) performed well enough in the water, but it had certain features that did not fit with my preconception of an "authentic Eskimo umiak." This report was written to describe the construction of the Ivuyivik umiak and to evaluate its degree of authenticity in the light of published accounts on umiaks. In the process of describing and evaluating the Ivuyivik boat in particular, the report has also become a sort of comparative survey of umiaks in general.

ACKNOWLEDGMENTS

Of the many who assisted in making the Ivuyivik umiak a tangible reality, I wish to thank in particular Révérend Père Joseph Meeus, O.M.I., for his patient interpreting and generous hospitality. I should also like to thank Dr. Tom F. S. McFeat for his guidance and Dr. Asen Balikei who introduced me to the umiak project. Many helpful suggestions on the writing of this report came from Dr. David Damas.

¹ Though "Ivugivik" has been used on recently published maps, I prefer "Ivuyivik" as it conforms more closely to the local Eskimo rendering in syllabics. The present official name is "Notre-Dame-d'Ivugivic."

For permission to use Plate IIIA (our numbering), I should like to thank Mr. T. C. Lethbridge, F.S.A., and the Council of the Society for Nautical Research (*Mariner's Mirror*, Vol. XXIV (1938)); my thanks also go to the American Museum of Natural History for the use of W. Bogoras' Plate IIIB and IVA (our numbering) from the American Museum of Natural History Memoir XI; also to the Bureau of American Ethnology for permission to use E. W. Nelson's Plate VI (our numbering) from *The Eskimo About Bering Strait* published in their 18th Annual Report.

"Women's Boat"

The umiak is the Eskimo's large, open skin-covered boat which is "the common means of coastwise travel in the summer" (Weyer, 1932: 91). It is often called the "women's boat," but "family boat" is generally a more suitable name (Turner, 1894: 235). Birket-Smith says,

In Greenland nowadays the usual name for this craft is 'women's boat' because, since the large whales have been almost entirely exterminated, it has sunk to being used exclusively as a travelling craft (1959: 84).

But even when whaling was practised in Greenland, umiaks were called

Kone-Boats, that is, Women's Boats; because the Women commonly row them. For they think it unbecoming a Man to row such a Boat, unless great Necessity requires it: And when they first set out for the Whale-Fishing, the Men sit in a very negligent Posture, with their Faces turned towards the Prow, pulling with their little ordinary Paddle; but the Women sit in the ordinary Way, with their Faces toward the Stern, rowing with long Oars (Egede, 1745: 111).

The steerer is always a man in west Greenland (Birket-Smith, 1924: 257), but in Angmagsalik, east Greenland, it is more often a woman (Thalbitzer, 1914: 379).

For Ungava Bay in the north end of the Labrador peninsula, Turner says,

The women use the boat alone only on rare occasions, and then in quiet water and for short distances. Men are nearly always in it, and under the guidance of one of these, the boat is used for long journeys (1894: 235).¹

For Point Barrow in north Alaska, Murdoch writes,

Though the women do a great share of the work of navigating the boat when a single family or a small party is making a journey, it is by no means considered as a woman's boat... On the contrary, women are not admitted into the regularly organized whaling crews, unless the umialik (boat captain) can not procure men enough, and in the "scratch" crews assembled for walrus hunting or sealing there are usually at least as many men as women, and the men work as hard as the women. I do not, however, recollect that I ever saw a man pull an oar in the umiak. They appear always to use paddles alone (1892: 335).

The Eskimo avoid this pedantic problem of terminology by calling their boat "umiak," i.e., a boat.

Distribution

Historically, the umiak is recorded for the following regions: Angmagsalik (East Greenland), West Greenland, south Baffin Land, Labrador peninsula, Mackenzie delta, Alaska, and east Siberia including the islands

¹ When Lyon sailed up the north side of Hudson Strait he encountered nine umiaks. Each was rowed by women, and each was steered by an old man with an oar, except for one which was steered by a fat old woman (1824:16,30,36,37).

of the Bering Strait and Bering Sea (Mathiassen, 1927, II: 64). At the time of their discovery by Europeans, the Eskimos from Coronation Gulf eastward to Hudson Bay¹ and the Iglulik and Polar Eskimos to the north did not use umiaks (Weyer, 1932: 91).

Archaeologically, however, signs of the umiak are found in the central arctic regions in the Thule Culture. Mathiassen (loc. cit.) mentions the following:

- (a) A drawing on a comb from near Pond Inlet in north Baffin Land shows an umiak holding three paddlers as well as a man standing in the bow wielding a whaling harpoon with both hands.
- (b) Also from near Pond Inlet comes what may be a worn floor timber from an umiak.
- (c) A drawing on a broken ivory disc from north Southampton Island shows kayaks, whales, and something looking like the bow of an umiak.
- (d) What appear to be models of single-bladed paddles, presumably for umiaks, were found near Pond Inlet and on north Southampton Island and Repulse Bay on the west side of Hudson Bay.

According to Mathiassen, the umiak was formerly used in the central regions but presumably fell into disuse owing to the scarcity of wood. For the Polar Eskimo district as well, scarcity of wood possibly had the effect that the umiak disappeared along with the kayak and the bow (Mathiassen, op. cit.: 195).

Another explanation for the disappearance of the umiak from the central regions is possible. In the words of Birket-Smith, who suggests an infiltration of the maritime Thule Culture by an originally inland culture,

The rising of the land has restricted the area of the large aquatic mammals, especially the whales, and must therefore have weakened a culture that principally rested upon the hunting of these animals (1959:196).²

It is unlikely that the immigrants from the interior brought the umiak with them. If they found it on the coast in a weakened Thule culture, perhaps they did not think that the big boat with its requirements for many skins and for wood, which was scarce, was worth adopting without an abundance of whales to hunt. In this problem, geographical, climatic, ecological, and cultural factors all have to be considered.

Several more archaeological finds could be mentioned in connection with the former distribution of the umiak. Near Spence Bay, at the base of the Boothia peninsula, four wooden boat models resembling umiaks were found in a site with materials of recent Netsilik culture (VanStone, 1962: 31-2). From a Thule Culture site at Resolute Bay, Cornwallis Island, Collins (1951: 63) reports an incised drawing on a whale bone snow-knife handle depicting five persons (harpooner, three crew, steerer) in an umiak harpooning a fat whale. A profusely decorated bow drill handle from Pond Inlet, collected by L. Oschinsky, has drawings of several umiaks, of which

¹On the west side of Hudson Bay around Bibby Island, mid-eighteenth century explorers and traders possibly met Eskimos who used umiaks for whaling (Ellis, 1748: 219, 229-30, 233). Birket-Smith says that a Thule Culture offshoot lasted into the eighteenth century on this section of coast and was possibly ended by a northward expansion of the Chipewyan Indians (1929: II: 11-16).

²As Birket-Smith (1929:II: 232) notes, the investigations of Mathiassen (1927) showed a former submergence of land and whaling in the central regions.

those depicting whaling are unfortunately partially obliterated (Mary-Rousselière, 1960, March, p. 10-11). These incised umiaks show exaggerated projections of the gunwales which somewhat resemble the long slender horns on the ends of the Qaernermiut kayak in shape.

In Peary Land in north Greenland, the most northern and eastern part of the former Eskimo territory, the framework of a remarkable 35-foot-long umiak was found by Eigel Knuth (1952: 18-23). It resembles the umiaks of Alaska rather than those of Greenland. To Knuth it appears to represent a comparatively recent migration to Peary Land two to three hundred years ago from a Thule Culture preserve "somewhere in northern Ellesmere Island or on the islands to the west" (op. cit.: 23-4).

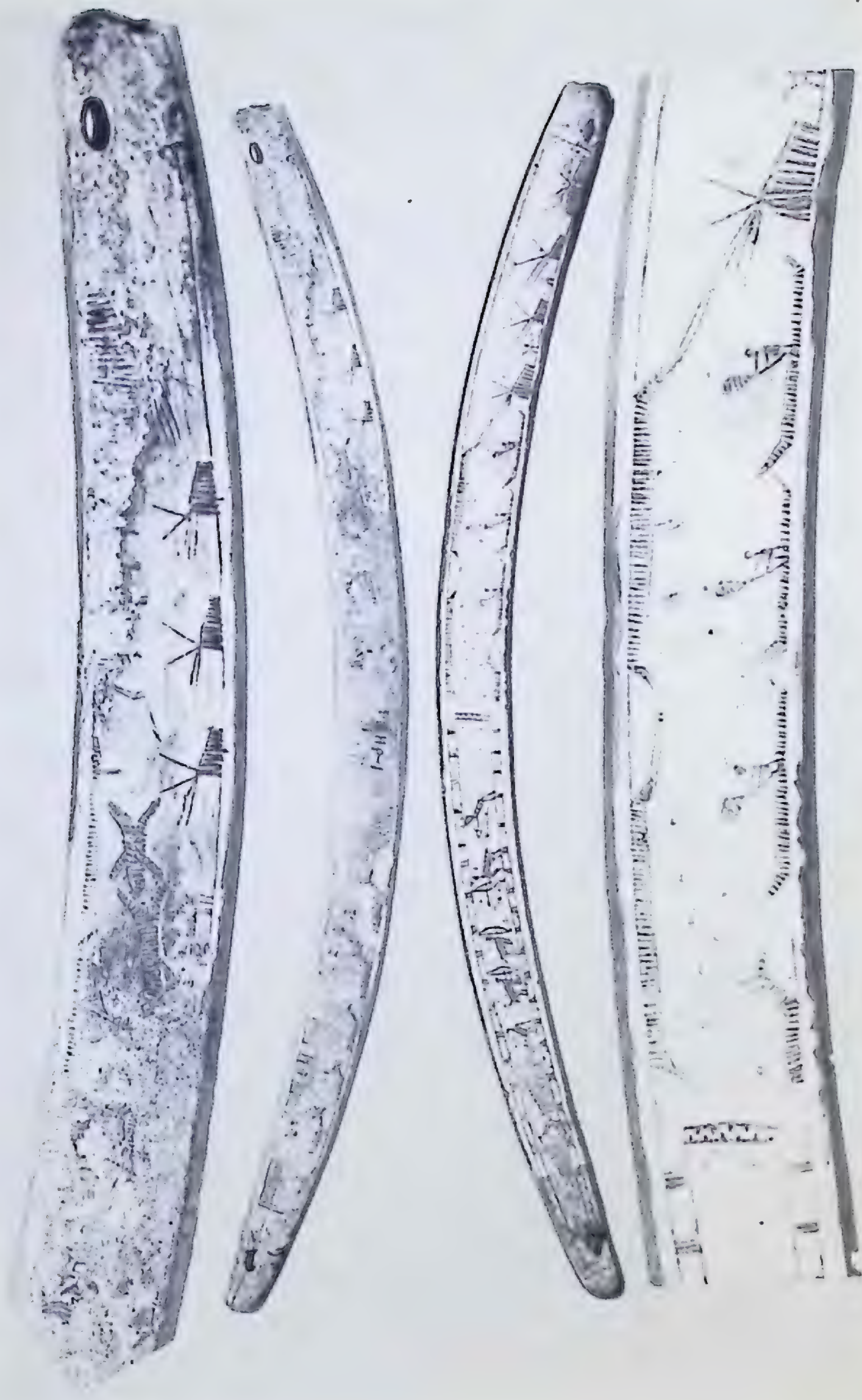
Form

SIZE

The umiak is a comparatively large open boat. Its dimensions vary considerably, particularly the length, which ranges from 10 to 40 feet. But generally the umiak is 20 to 30 feet long with a beam of 5 to 6 feet amidships and a depth of 2 to 3 feet.

TABLE 1. *Size comparison of five umiaks*

Dimension	Umiak				
	Large <i>Chukchee</i> (Bogoras, 1904: 127)	<i>Mackenzie</i> —Toker Point, NWT (National Museum of Canada, specimen IV-D-1913)	<i>Hudson Strait</i> —Ivuyivik, P.Q. (National Museum of Canada Specimen IV-B-766)	Typical <i>West Greenland</i> (Birket-Smith, 1924: 256) converted from centimetres	Large <i>Angmagssalik</i> (Holm, 1914: 43)
Length:	ft. in.	ft. in.	ft. in.	ft. in.	ft.
top.....	35	28	19 10	31 7	26½
bottom.....	—	22½ approx.	19 2	31 2	—
Beam amidships:					
top.....	4½	5½	6 8	5 9	4½
bottom.....	2½	2½	4 2	4	2½
Depth (or Height):					
amidships.....	2 8	2	2 2	2 6	2½
fore.....	—	2 1	2 3	3 2	—
aft.....	—	2 2	2 3	3	—



Centre two: Bow drill handle (both sides) from north Baffin showing umiaks and whaling; top and bottom: detailed section of each side

About Ungava Bay and along the south side of Hudson Strait, the region that includes Ivuyivik, umiaks at the turn of the century were often 20 feet or more long by 6 feet or more wide amidships (Low, 1906: 156). For Ungava Bay, Turner says,

The size of the boat is variable according to the means of the builder and the size of the family to be conveyed in it. The length of the keel is from 10 to 25 feet. Over all the length is 1 to 2 feet greater than on the keel (1894: 235).

in Greenland, umiaks are, on the average, larger on the west coast than on the east coast (Birket-Smith, 1924: 256). For Alaska, Bering Strait, and East Siberia, Nelson says that the umiak varied in size according to the locality or the purpose for which it was made, the length varying from 15 to 40 feet (1899: 216). At Point Barrow in north Alaska it was usually about 30 feet long, 5 or 6 feet wide, and about $2\frac{1}{2}$ feet deep (Murdoch, 1892: 335). In Siberia the Chukchee boats were commonly 20 to 25 feet long, 4 feet wide, and $2\frac{1}{2}$ feet deep (Sarytschew, 1807, II: 49).

VARIATION

Typical form

There is considerable variation in the form of the umiak from place to place, but this variation is mainly one of details and dimensions. The essential features of construction remain quite constant. Generally wherever the umiak is found, not including Europeanized or hybridized versions, it is flat-bottomed and double-ended with gunwales secured on top of transverse timbers fitted on the ends and projecting beyond them. The framework typically has the following parts: *keel*, or centre "backbone" of the boat; *stem- and stern-posts* at the ends of the keel, on top of which fit substantial transverse pieces of wood here referred to as *thwart blocks*; *floor-timbers*, or bottom ribs, which sit transversely across the keel; *bilge stringers*, which are longitudinal pieces at the turn of the bilge where the flat bottom meets the sides of the boat; *side ribs*, connecting the bilge stringers to the *gunwales*, which are usually comparatively slender poles forming the top edge of the sides; several *thwarts*, or transverse seats; a pair or more of *outer stringers* bridging the side ribs longitudinally; and a pair of *inner stringers* along the inner side of the ribs just below the thwarts. A skin cover is stretched tightly onto the framework by thong loops running through slits cut in its margins and laced around the inner stringers. The umiak is propelled by oars or paddles or, sometimes, both at the same time. With a following wind, a square sail may be set, except at Angmag-salik where sails were not known (Holm, 1914: 43). To prevent swamping in rough seas or whaling, inflated skin floats were often tied to the sides. Throughout the vast territory of the umiak, "difference in technique and design are comparatively trivial and much less marked than those between the Irish currachs of Donegal and Kerry, less than 300 miles apart" (Hornell, 1946: 155).

¹In referring to the various parts of the umiak, this report does not pretend to conform strictly to the best nautical usage.

"Eastern" and western" umiaks

For the purpose of discussing the existing variations in form, umiaks may be loosely classified into two groups: the "eastern" in Greenland, south Baffin Land, and north Labrador; and the "western" in Mackenzie, Alaska, and the Bering Strait. Though the Koryak skin-covered boat closely follows the umiak in general design, it will be left out of this discussion as it is quite a separate type with its flaring sides, great width in proportion to length (e.g., 9 m long by $2\frac{1}{2}$ m wide), and its semi-circular ends formed by a continuous gunwale that curves without a break around the stem and stern (Jochelson, 1908: 534-9, plate vii facing p. 80). The open skin boats of the Aleut, Koniag, and Chugach also had somewhat distinctive shapes (Birket-Smith, 1941: 146, 1953: 49; Jochelson, 1933: 56-8; Durham, 1960: 21-2).

General proportions

In overall shape the "eastern" umiak, especially the Labrador version, often looks more box-like and awkward than its "western" cousin. Hawkes says,

The stem and stern of the Labrador umiak are wider than the Alaskan, and the sides straighter in proportion to its length, giving it an unwieldy appearance. It lacks the "lines" of the Alaskan type (1916: 69).

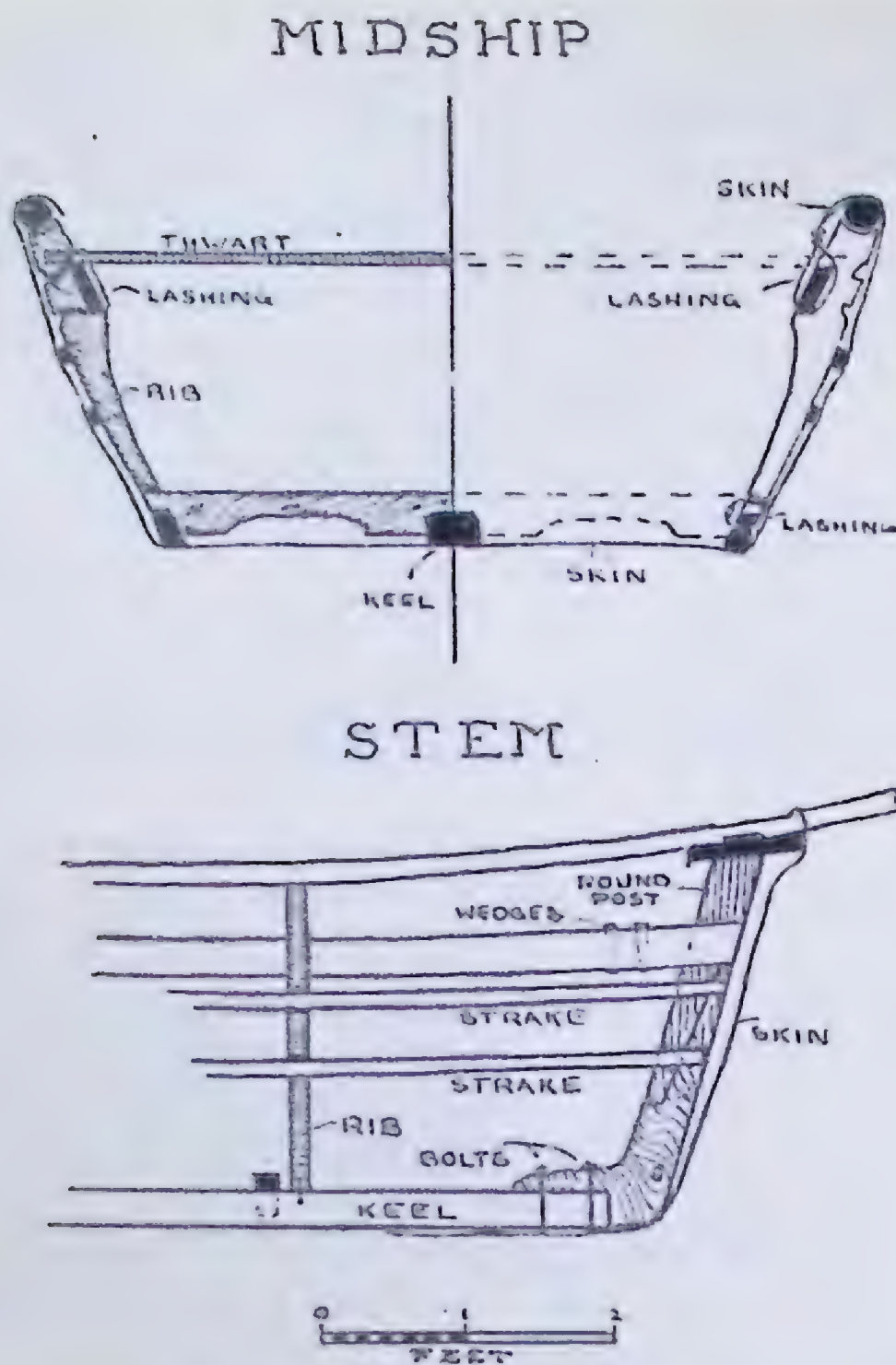
Umiaks in Greenland are not so wide in the ends as the Labrador boats and consequently do not look so unwieldy. In the "western" umiak the thwart blocks at the ends may only be about two feet wide. Also, the projecting gunwale ends sometimes are joined together at the stem thus adding to the more streamlined appearance of the "western" boat (Murdoch, 1892: 336). Similarly in earlier west Greenland umiaks, the gunwale projections used to be joined together at the tips, but in this century the gunwales ended in separate horns. Long united gunwale projections broke too readily (Birket-Smith, 1924: 254).

Rake

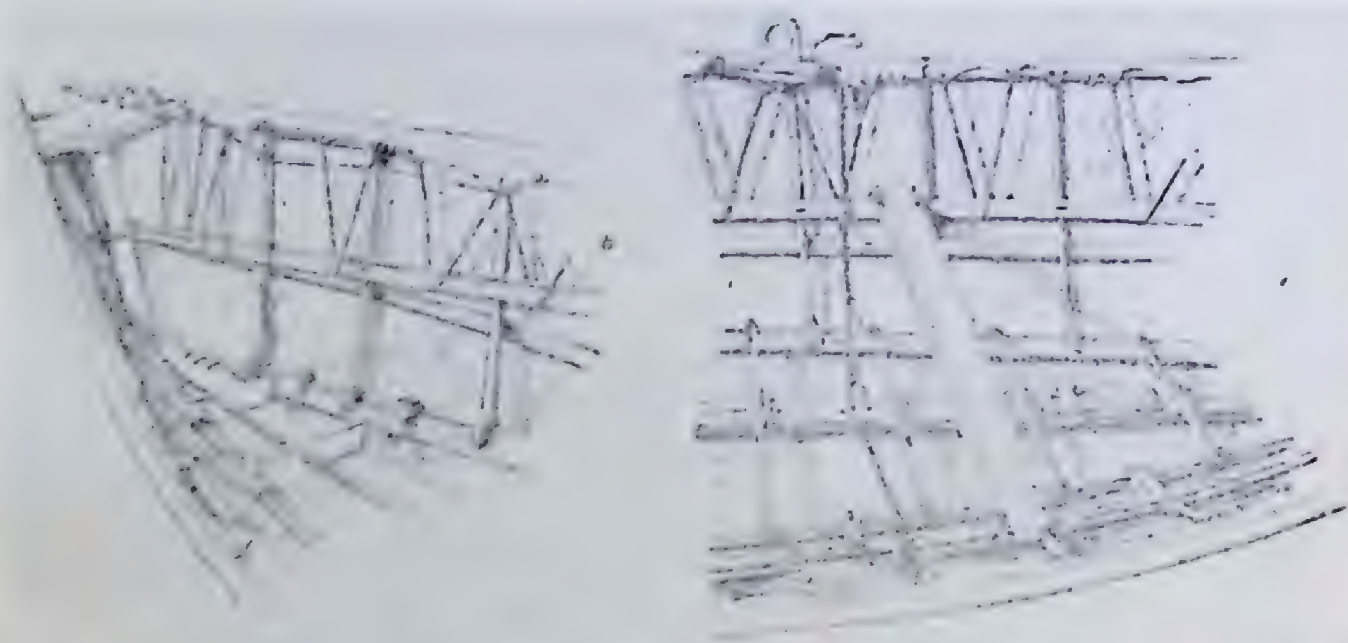
In profile, the stem and stern of the eastern umiak are only slightly raked or nearly vertical, but in the western umiak they usually show considerable rake, i.e., stem- and stern-posts lean out markedly from the ends of the keel. Sometimes the stem alone has a definite rake, while the stern approaches the vertical (Curtis, 1930: 20). This rake in the western boat helps to make it look speedy, "rakish."

Thwarts

In the western umiak the thwarts are set deep inside, well below the gunwales, resting on inner stringers, fastened at about the middle of the side ribs (Curtis, 1930: 21). In a boat from a grave at Toker Point, which is east of the mouth of the Mackenzie, the centre thwart is only about 15 inches high off the bottom (National Museum of Canada, specimen IV-D-1913). In the eastern umiak the thwarts sit much higher up, close to the gunwales. In the Labrador umiak the thwarts fit into the gunwales themselves (Hawkes, 1916: 69).



A. Construction detail of an "eastern" umiak from Greenland (Reproduced by permission of Mr. T. C. Lethbridge, F.S.A., and the Coun. of the Soc. for Naut. Res. (Mariner's Mirror, Vol. XXIV (1938))).



B. Construction detail of a "western" umiak from Siberia (Bogoras, Am. Mus. of Nat. Hist. Memoir XI).

Keel and floor-timbers

The western and eastern umiaks also differ in the way wood is used for the keel and floor-timbers, or "floors." In the western boat, the wood is laid flat, i.e., with the greater width in the horizontal plan. In Greenland boats, the keel and floor-timbers stand on edge, i.e., with the greater width in the vertical plane, each floor being notched underneath to fit onto the keel and the bilge stringers (Birket-Smith, 1924: 254). Placing the keel and floor-timbers on edge should make them strong for supporting a load. For Ungava Bay, Turner (1894: 235) says the keel and bilge stringers were square. The floors were notched at the centre and the ends, but whether they were placed edgewise or flat, or were square is not mentioned.

Side ribs and stringers

The side ribs generally seem to be fewer and thicker in the eastern umiak than in the western. Also in Greenland boats at least, the ribs are placed with the greater width in the transverse plane, and their inner edges are notched for the inner stringer (Birket-Smith, 1924: 254). In Angmagalik boats, this stringer formerly ran through holes made in the ribs (Holm, 1914: 43). As a rule, there are about seven ribs on each side of an ordinary west Greenland umiak (Birket-Smith, 1924: 254). In contrast, the western umiak framework from Toker Point, mentioned above, has seventeen pairs of ribs. These thin ($1\frac{3}{4}$ inches by half an inch) ribs fit into slots in the gunwales and bilge stringers with the greater width in the longitudinal plane. Inner stringers are nailed to the ribs.

Construction of the framework

The main material used in making the framework of the umiak was wood, commonly driftwood. Whale bone was also used. Lashings to hold the parts together were usually of thong, often cut from the skin of the bearded seal. Pins or pegs of wood, antler, or ivory were also used. Metal nails, when present, are probably almost always of foreign origin. The umiak framework found in Peary Land was of spruce or larch driftwood (except for one small piece of oak) assembled with baleen lashings, barbed spikes of walrus ivory, and a few iron nails (Knuth, 1952: 23).

The umiak framework is customarily built right-side-up starting with the keel and the stem- and stern-posts, which are joined together in a variety of ways. A stem- or stern-post may be tenoned into a mortise cut in the widened end of the keel (Boas, 1888: 527). Or the keel may be grooved into slots cut vertically in the curved foot of the post (Birket-Smith, 1924: 254). In the Upernivik District of west Greenland, the stem which rests upon the keel is scarfed to it by pieces of wood on the sides (op. cit.: 256). In north Labrador the stern-post and the keel may be made in one piece from a curved tree trunk (Turner, 1894: 235). In the framework of Toker Point near the Mackenzie, mentioned before, both stern- and stem-posts are upcurving continuations of the keel, two long curved timbers being scarfed together amidships.



Constructing a boat in the Village Uñisak (Bogoras, Am. Mus. Nat. Hist. Memoir XI)

Next, the floor-timbers and bilge stringers for the flat bottom of the umiak are lashed and/or pinned together onto the keel. In west Greenland the bilge stringers are first fastened with antler pins to the stem only. Then working from the centre to either end, the floor-timbers are put in. After this is finished, the bilge stringers are pinned to the stern-post (Birket-Smith, 1924: 254).

A photograph of this stage of framework construction among the Chukchee of eastern Siberia is shown above as illustrated by Bogoras (1904: plate XI).

Next, the side ribs are erected on the bilge stringers in the intervals between the floor-timbers. The ribs flare outwards. On their inner surfaces the stringer for holding the lashings of the cover is fastened by lashings or pegs or metal nails.

The upper part of the umiak is formed from the gunwales, thwarts, and thwart blocks at the ends. In west Greenland the gunwales are first lashed on the notched heads of the ribs. A thwart block is fitted on top of a stem- or stern-post. The gunwales are lashed to the thwart block to pass over it and project as the characteristic horns. Then the thwarts are put in, starting amidships and working to the stem and stern. They are lashed into notches cut in the ribs; they rest on the inner or thwart stringer. The hitherto unfinished end is then completed with thwart block and gunwales. Finally, one or more pairs of outer stringers are lashed or pegged or nailed to the sides to finish the framework (Birket-Smith, 1924: 255). In Alaska the framework may be painted with red ochre (Murdoch, 1892: 340).

Skin cover

The skins for covering the framework are sewn together by the women who use braided sinew thread and a special embedded stitch to make lapped waterproof seams. The kind of skin used varies. The most widely used animal appears to be the bearded seal (*Erignathus barbatus*), also called square-flipper or ground or barbed (?) or thong or "largest" seal. It is about 7½ feet long and can yield a hide about 4 feet wide. Split walrus hide seems to be used mainly in Siberia and Alaska. The Chukchee and Eskimo of east Siberia used such large walrus hides that one and a half skins sufficed for the largest boat (Bogoras, 1904: 126). The Alaskan Eskimo about the Bering Strait used walrus or heavy sealskin (presumably bearded seal) (Nelson, 1899: 216). At Point Barrow bearded seal was preferred, six being required for a cover; still, walrus was often used and sometimes polar bear (Murdoch, 1892: 337). Three to four walrus skins served to cover a north Alaskan boat (Spencer, 1959: 33). In south Baffin Land the Eskimo used bearded seals—five skins for a large umiak or three for a medium-sized boat—or harp seals (*Pagophilus groenlandicus*) or small seals, of which as many as twelve were required (Boas, 1888: 528). Sometimes walrus hide was used too (op. cit.: 522). The west Greenlanders considered harp seals to be the best for an umiak cover; about twenty were required for a cover, according to Birket-Smith (1924: 255). When bearded seals were used, seven or eight skins were sufficient for the common boat. In east Greenland a large umiak was covered with seven bearded seal skins; several small boats needed only five skins. Harp seal was also used (Holm, 1914: 43).

The men put the completed cover on the framework, pulling it tight by thongs laced through holes in its edges and looped around the inner stringer. In west Greenland the cover is fastened to the thwart blocks at the ends of the boat with bone pins (Birket-Smith, 1924: 255). In south Baffin Land the cover was lashed to the thwart blocks by thongs passing through holes drilled in them (Boas, 1888: 528). When the cover dries tight around the framework, several coats of oil are applied, waterproofing the skins for a week of daily use, after which drying and another coat of oil are required (Holm, 1914: 43; Nelson, 1899: 217). With care the cover lasts several years, according to Nelson (loc. cit.). Covers are white in south and east Greenland where the dark epidermis is scraped off after loosening by a period of wrapped-up storage and a few hours soaking in salt water or urine (Birket-Smith, 1924: 255). In west Greenland at Disko Bay, the skin cover was sometimes painted in modern times for decoration and waterproofing; otherwise, north of Godthaab the skins are black (op. cit.: 255).

In Alaska, decorations were painted on the sides of the umiak. At Kotzebue Sound in 1881 Nelson saw umiaks with the "figure of a man painted roughly in black close to the bow" (1899: 218). The umiaks of the Yukon and Kuskokwim rivers commonly had painted along each side "a mythic, alligator-like animal called päl-rai-yuk," which looks something like a six-legged oriental dragon minus wings. This monster may be distantly related to the West Greenlander's *kilivfak* which is "the same length as an umiak and has six legs, a human face, and a rather short tail" (Birket-Smith,

In the drawings of this animal on umiaks, at intervals along the body are open spaces, inside which are represented parts of a human body, showing the belief in its having eaten such food. It was said to live in the water, where it lay hidden among the grass, whence it suddenly rushed to seize a person on the bank or to attack kaiaks when crossing its haunts.

The curious likeness of these animals to the alligator, as shown in the accounts of its habits and in drawings representing it, is very remarkable. Nearly all of the umiaks in the country of the lower Yukon and to the southward have a picture of this animal drawn along the entire length on each side of the boat, with the head near the bow, and the figure is common also on wooden dishes in that region. It appears to be a local myth, and can scarcely have been brought to these people since the advent of the whites. The country where this myth

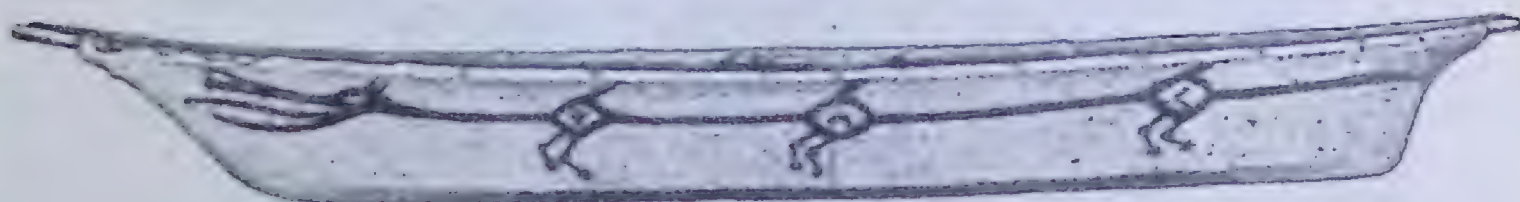


FIG. 156.—Drawing of the *pal-rai-yuk* on an umiak (A).

is most prevalent is one of the least visited of any along the coast of Bering sea. The accompanying figure 156 represents a model of an umiak from the lower Yukon, with the animal drawn along the sides.

Drawing on an umiak (Nelson, Bur. Am. Ethnol., 18th Ann. Rept.)

1924: 221). *Sisiutl*, the double-headed sea-serpent of the Northwest Coast Indians, seems to be quite a different creature, though it was sometimes painted along the sides of the long cedar dugout canoes.

Paddles, oars, and rudders

Both paddles and oars, separately or simultaneously, were used to propel the umiak. The western umiak was originally paddled; only later was it rowed, in some localities, with slender-bladed oars (Nelson, 1899: 216, Bogoras, 1904: 127; Curtis, 1930: 21-2). The steering of the western boat was always done with a large paddle. In the whaling of the past, the eastern umiak was paddled by the men, but in the main it was rowed by the women (Boas, 1888: 499; Birket-Smith, 1924: 258). The west Greenland oar originally had a thin, almost triangular blade; later, European oars with longer, narrower blades were generally preferred. Four rowers were usual for short trips, six for long journeys (Birket-Smith, loc. cit.). The Angmagsalik oar was very short with a broad blade. Several oars were used in a boat, but not uncommonly a boat was rowed by only two women (Holm, 1914: 43). Steering was done with a long-bladed oar which rested against the gunwale. Rudders were still rather rare in west Greenland in 1918 (Birket-Smith, loc. cit.). At the turn of the century the Labrador umiak had two to

four heavy long oars, each pulled by two or more women; men might assist in rowing (Turner, 1894: 236; Low, 1906: 156; Hawkes, 1916: 69). Rowlocks were ingeniously formed by pairs of opposing thong loops, twisted tightly with sticks around the oars. A piece of bone or wood was fastened on the gunwale to guard the skin cover from the rubbing of the oar. In Greenland the oar shaft had a projection on the side to prevent its sliding out of the oar straps (Birket-Smith, loc. cit.; Knutsen, 1941: 393 illus.). In Siberia and Alaska pierced rigid rowlocks were copied from European boats (Bogoras, 1899: 128 illus.; Nelson, 1899: 218). Fixed rudders, as used in the Hudson Strait, were probably imitations of European ones. (Boas, 1888: 529).

Skin floats

To prevent foundering in rough seas or in whaling, several inflated sealskin floats were lashed to the outside under the gunwales (Nelson, 1899: 217-18; Birket-Smith, 1924: 337). The Chukchee used inflated skin floats as rollers in launching their boat and on short portages (Bogoras, 1904: 131). Floats were also used as rollers on the south side of Hudson Strait to protect the umiak cover from wear and tear on the beach.

Sail

A square sail was used with a following wind. In eastern umiaks of South Baffin Land and west Greenland, the mast was set in the stem (Boas, 1888: 529; Birket-Smith, 1924: 259). In southwest Hudson Strait and western umiaks the mast was erected nearer the middle of the boat, often by the second thwart from the front (Bogoras, 1904: 128 illus.; Nelson, 1899: illus. facing p. 217).

Sails were made of various materials. The Chukchee formerly made sails from curried reindeer skins. Later they made them of white and blue drilling or a patchwork of cotton and skins. At the turn of the century the Chukchee were adopting the triangular sail of the European whaleboat which enabled them to beat to the windward (Bogoras, 1904: 129-30). For the Eskimos about Bering Strait, Nelson writes,

In ancient times sails sometimes were improvised by sewing together grass mats and putting them up between two long sticks, which were fastened to the framework of the umiak and stayed by means of cords so as to extend upward and outward in V-shape form, one from each side of the boat. Later, after the arrival of white men, a single upright mast with stays and with blocks made from bone or ivory, were adopted in imitation of the rigging used on the ships of the strangers (1899: 217).

Sails were then made of animal skins such as reindeer or light seal skins. Finally many sails were made of light canvas or drilling. In the late nineteenth century at Point Barrow, sails were always made of drilling. Dark blue was the popular shade (Murdoch, 1892: 338). As for the eastern umiaks, sails formerly used to be made of seal or walrus intestines, carefully cut open lengthwise and sewn together, at least in west Greenland and south Baffin Land (Egede, 1745: 111; Lyon, 1824: 35; Boas, 1888: 529). Later, sails were of cloth (Birket-Smith, 1924: 259; Turner, 1894: 236). For Angmagsalik, east Greenland, Holm tersely states,

Sails are not known (1914: 43).

On the question of whether Eskimo sails were pre-European or not, Birket-Smith says,

there can scarcely be any doubt that the Eskimos have known the sail before the coming of the Europeans (1924: 259).

He includes sails among the elements of Eskimo material culture that "display quite special connection with Siberia" (1959: 183).

Recent modifications in Alaska

In Alaska after the white men began beach, or floe, whaling in the 1880's and established trading posts, the Eskimos patterned their whaling equipment and methods after the white man's (Andrews, 1916: 252-3). The Alaskan umiak, at least at King and Diomed Islands, was modified to generally resemble the American whaleboat in shape and dimensions, with curved ribs (recently of steam-bent hardwood) forming round bottoms, and perhaps with an outboard motor nowadays (See illustrations in the National Geographic Magazine: vol. XCIX, 1951: 551, 559; vol. CII, 1952: 75; vol. CV, 1954: 138. See also Curtis, 1930).

Some Uses and Sociocultural Aspects

TRANSPORTATION

Among the coastal Eskimos the umiak is the chief means of water transportation (Murdoch, 1892: 335; Turner, 1894: 235).

The umiak is extremely useful when travelling in summer: On account of its flat bottom it takes a far greater load than a European boat of the same length. The travellers are independent of harbours, as the boat is easily pulled ashore wherever there is an accessible beach, and it is without any difficulty carried across the portages. When it is pulled ashore for the night and turned in order to be dried, resting on one side on a pair of wooden sticks, it frequently gives the travellers shelter for the night (Birket-Smith, 1924: 257).

The fragility of the skin cover is a drawback. Sharp ice or rocks can easily tear it, especially when it is soaked and softened. Abrasive sand and pebbles cannot be left between the floor timbers and the cover (Bogoras, 1904: 131; Birket-Smith, loc. cit.).

SEASONAL MOVEMENTS FOR SUBSISTENCE

As game varies in availability by species, locality, season, and weather conditions, movement was an essential feature of subsistence among most Eskimos. The capacious umiak was very handy for moving family and household possessions to the food supply; when it could be used, the umiak was the most efficient means for such transportation. Turner (1894: 203) describes how the Koaksokmiut of Ungava Bay used to launch the umiak at the spring break-up of the ice and creep along the coast by easy stages. In accompanying kayaks the men hunted seals while the women and children gathered anything edible, especially the eggs of nesting sea birds, from the islets and coves. Boas (1888: 423-38, 463, 469) mentions umiaks in describing the movements of south Baffin Land groups. In late summer the Greenlanders used to go up the fjords by umiak to hunt caribou and fish for trout (Birket-Smith, 1959: 102). The big boat was by turns both

burden and means of transportation to the Alaskans of the Noatak River on their seasonal moves (Curtis, 1930: 194). In Alaska the umiak is still used for seasonal subsistence movements. The King Islanders go to Nome for summer jobs in half a dozen powered umiaks (Munoz, 1954: 146).

WHALING

The bowhead whale (*Balaena mysticetus*), also called the Great Polar or Greenland or Arctic Right Whale, was hunted from the umiak from Siberia to Greenland in prehistoric and historic times. Archaeologically, in Alaska, evidence of whaling has been found for the Near Ipiutak, Old Bering Sea, Okvik, Punuk, Birnik, and Thule Culture peoples (Birket-Smith, 1959: 193-6). The Thule Culture, which covered a vast territory from north Alaska to Greenland, was primarily characterized by whaling from umiaks. In the central regions this whaling culture was succeeded in the last few centuries by the modern Central Eskimo culture.

Historically, wherever umiaks were known they were used for whaling until the whales decreased and were not readily available. In Alaska, whaling from umiaks still continues at Point Hope (Rainey, 1942, 1947). In the eastern regions whaling from umiaks ended when the whales were greatly reduced by the nineteenth century whaling industry. At Angmagalik, whaling ended at the beginning of the nineteenth century, "the whales having at that time quite ceased to come to land" (Holm, 1914: 56).

As the bowhead whale has very acute hearing and is very shy, a quiet approach is necessary. As paddles make less noise than oars, they were used in whaling from umiaks. European whalers tried to sail onto the whale if possible (Low, 1906: 263). The adult bowhead varies in length from 40 to 60 feet. When breathing it surfaces for several minutes. Then it submerges for fifteen to twenty minutes. In feeding it swims at a speed of two to four miles an hour, near or at the surface. A harpooned whale dragging a whaleboat rarely exceeds six miles an hour (op. cit.: 259, 261, 263). A fast boat would seem desirable in pursuing whales. Both kayaks and umiaks, energetically paddled, are fast. However, it is difficult to wield the big whaling harpoons and lances from kayaks (Mathiassen, 1927, II: 183). On the other hand, in an umiak a selected man can conserve his strength during the pursuit; then, when the whale is reached, he can stand in the bow, get set, and drive in his harpoon or lance with all his might. Murdoch says the big heavy whale harpoon "is never thrown, but thrust with both hands" (1892: 235), as does Porsild (1915: 145), but Spencer (1959: 342) says it was thrown. For towing a huge carcass, umiaks with numerous paddlers again appear superior to kayaks.

If the umiak was capsized by the whale "there was little hope of survival" in north Alaska (Spencer, 1959: 342). In Greenland, several floats used to be fastened to the gunwales, and inflated combination suits of sealskin with jacket, hood, trousers, boots, and mittens, all sewn together in one waterproof garment, which could keep a man afloat for several hours, were worn by the crew (Birket-Smith, 1924: 188-90, 337; Holm, 1914: 31, 56; Thalbitzer, 1914: 403).

Sleeping whales were approached by stealth at Angmagalik in earlier times (Holm, 1914: 56). In this century sleeping humpbacks (*Megaptera boops*) were still hunted with lances, presumably from umiaks, in west Greenland at Frederikshaab (Birket-Smith, 1924: 335).

Whaling used to be of the greatest importance in northern Alaska where ice conditions restricted sealing (Birket-Smith, 1959: 99-100). Historically, intensive whaling was practised from Point Hope to Point Barrow. Recently the people along this coast, about 2,000 in number, were concentrated in four whaling villages (Spencer, 1959: 19). When the bowheads migrated northward in spring, the whaling crews camped by the open leads in the offshore ice to pursue the whales in umiaks (op. cit.: 26). In a successful season 15 to 25 whales might be taken by a community (op. cit.: 26, 141).

The upshot of the whaling, given an average year, made for a considerable surplus of food and a basic ease of life (op. cit.: 27).

A whale was a huge ready-made cache of food and fuel. It also provided bone and baleen for making house beams, sleds, ornaments, amulets, armour, and other artifacts. The rich elaboration of Eskimo culture in north Alaska was largely supported by and centred on whaling from the umiak.

Whaling was without question the major preoccupation of the past (op. cit. : 369).

HUNTING OTHER SEA MAMMALS

In open waters, seals, white whales or beluga (*Delphinapterus leucas*), and narwhals (*Mondon monoceros*) were generally hunted with kayaks. The walrus (*Odobenus rosmarus*), however, was hunted with umiaks as well as kayaks. It was a dangerous animal to attack with harpoons and lances (Boas, 1888: 497; Hawkes, 1916: 84). In northern Labrador, walrus "were hunted by crews in the umiak, or according to older style, a party of men would encircle them in kayaks and drive the herd towards shore" (Hawkes, loc. cit.). Kayaks were similarly used in Alaska to drive walrus ashore in shallow bays near the Kuskokwim River (Nelson, 1899: 166). In Alaska, umiaks were also used a great deal in walrus hunting, which was a group venture in north Alaska (Spencer, 1959: 33). In a good summer each community took a hundred or more walrus (op. cit.: 141). Many were also taken by the people of the islands in the Bering Strait. In spring when the migrating herds are spotted on an ice pan, the King Islanders go there by umiak to ambush the walrus with rifles (Munoz, 1954: 145).

In north Alaska the bearded seal, unlike smaller seals, was hunted communally in the umiak (Spencer, 1959: 33, 274). White whales were also hunted communally by the umiak crew (op. cit.: 163). They used to be harpooned in shallow water, sometimes being driven ashore to waiting hunters, or taken at the edge of the ice in spring (op. cit.: 34, 276). Incidentally, caribou were driven into lagoons on the Point Hope bar and speared from kayaks and umiaks by beluga-netting families (Rainey, 1947: 266).

In the eastern Arctic, white whales were hunted with kayaks (Birket-Smith, 1924: 334; Low, 1906: 157; Turner, 1894: 247). Now when Boas says, "The narwhal and the white whale are hunted in the same way as the walrus and the right whale" (1888: 501), this might mean that narwhals and white whales were often hunted with umiaks as well as kayaks, since the right whale was often pursued with umiaks (op. cit.: 501). Boas

also says that when white whales entered one of the shallow bays, which they frequent in summer, they were frightened into the shallowest part by Eskimos throwing stones from umiaks and kayaks, and easily harpooned (loc. cit.).

FISHING

Fishing in open water with nets and lines appears to be usually done from kayaks (Birket-Smith, 1924: 363; Murdoch, 1892: 285; Nelson, 1899: 184). Probably the bulky umiak is more awkward to handle for fishing, as it rides high in the water, catching every breeze, and needs more than one person to operate it. However, in Greenland the umiak is used in catching caplin (*Mallotus villosus*) which when dried is the Greenlander's "bread" in the winter (Birket-Smith, 1924: 366). At Angmagsalik in spring, when the fjord is open, except in the middle part, all the people of the district travel up the fjord for caplins (Angmagsat), first by umiak, then by sled, then again by umiak. The caplins are caught with large cylindrical scoop-nets from umiaks or are speared from kayaks (Holm, 1914: 54).

The Greenland shark (*Somniosus microcephalus*) is fished for from umiaks with hook and line in the Egedesminde District of west Greenland (Birket-Smith, 1924: 307). At Jakobshavn kayaks are used.

TRADE

Trading voyages were carried out in the commodious umiak which was thus instrumental in any cultural diffusion that might have been involved. For example, the Siberian Eskimo of East Cape brought Circasian leaf tobacco to the Unalit of Alaska before the latter had direct contact with Europeans. Regular summer trading trips used to be made across the Bering Strait by umiak. Along the Alaskan coast when the old inter-village hostility broke down in the late nineteenth century, active barter between the different communities became a marked feature of their life (Nelson, 1899: 229-32). Trading centres developed, to which people came in summer by umiak from coast, islands, and inland (Spencer, 1959: 198-209). Trade brought widely separated people together and promoted the spread of ideas and culture elements among them (op. cit.: 199). There were trading voyages in Greenland too. The eastlanders would go in umiaks and kayaks to the west coast to trade and to pass the winter there (Thalbitzer, 1914: 342-3). On the east side of Baffin Land where driftwood was scarce, voyages were made to Resolution Island for wood (Boas, 1888: 469).

When European ships could not enter shallow shore waters, the Eskimos went to meet them in kayaks and umiaks, and thus played a prosaic but essential part in the trade on the ships. At King Island, Alaska, umiaks still act as barges to land supplies from the annual ship (Burg, 1952: 75; Munoz, 1954: 129).

MIGRATIONS

As the common means of water transportation, the umiak could be expected to have been important in the maritime Eskimos' migrations, their more than merely seasonal shifts of residence to new localities. The relative importance of umiaks in such movements to new localities, compared to

other means of transportation like dog sleds, pack dogs, and walking, is hard to gauge. It would seem most efficient to move household and possessions by umiak. Instances of migration by umiak are known. In the last half of the nineteenth century five parties journeyed northward from Angmagsalik in umiaks and never returned (Thalbitzer, 1914: 346). The umiak frame of "western" form found in Peary Land, north Greenland, can plausibly be interpreted as a means of migration from the west (Knuth, 1952: 23).

WARFARE

In Alaska when war parties needed water transportation, the umiak was naturally used.

In ancient times the Eskimo of Bering Strait were constantly at war with one another, the people of the Diomedé islands being leagued with the Eskimo of the Siberian shore against the combined forces of those on King island and the American shore from near the head of Kotzebue sound to Cape Prince of Wales and Port Clarence... The last war party in this district came in a fleet of umiaks from East cape, Siberia, and the Diomedé islands, and sailed up Port Clarence (Nelson, 1899: 330). *See also* p. 504.

SOCIAL ORGANIZATION

As may be expected, such a useful and valuable piece of economic equipment as the umiak was important in the social organization. Cooperation beyond the immediate biological family was involved in its construction and use. The maker of the Ivuyivik boat said that, customarily, while one man made the framework another was out hunting for the skins to cover it and for food to support the builder and his family. Ownership of an umiak was sometimes shared by two or more families. On the Hudson Strait, brothers often lived together, owning an umiak and a tent in common, but other household possessions individually (Turner, 1894: 240). In east Greenland the umiak could be a factor in polygyny; Holm says, "A second wife is sometimes taken in order that the husband may always count on having two rowers for his boat." (1914: 65).

Owning an umiak brought social prominence; the owner had wealth, prestige, influence, and even some authority in his community. About the Labrador Eskimos in Ungava Bay, Turner says,

The possessor of the large or open boat is able to move with his family and effects to a locality where, from his kaiak, he has discovered an abundance of seals, walrus or other creatures; while the men who have no boat, can procure only that which comes near the shore. These latter, accordingly, accompany the wealthier as assistants, and receive whatever their more fortunate employers may choose to give in return (1887: 106).

The wealthier and the older men of the community were the "recognized authorities" whose desires and opinions were "usually respected by the less influential people" (*op. cit.*: 105-6). Turner also describes the road to success in Ungava Bay. The young man starts with a rifle and a wife. If he is an energetic and successful hunter, he will soon be able to own a kayak. With the kayak he is able to get enough seal skins to cover an umiak. Next he tries for a dog team, a sled, and a tent. When he has all these things, he is generally able to direct others to assist in their transportation, and he becomes the head of an extended household, including his brothers and sisters and their families (1887: 106; 1894: 240).

Whaling requires co-operative activity. The co-operative unit was the umiak crew, usually of eight or ten men in Alaska and Siberia where whaling was most highly developed in historic times. The umiak as the material nucleus of co-operative hunting activity was an integrating element in the social organization of the maritime Eskimo community. Bogoras says that the boat crew was the social unit of the Maritime Chukchee (1904: 628). In north Alaska

The community, whether village or band, possessed only an ephemeral solidarity. People settled where the opportunities seemed best, either where there were other relatives or where hunting seemed most favourable. Thus the primary nonkin tie to the community was the cooperative hunting activity. And this...inspired loyalty to the crew (for whaling) and *karigi* (ceremonial house) first and to the community second (Spencer, 1959: 163).

The motivation to become associated with a whaling crew lay in an allegiance to an *umealiq*, the umiak-owner and whaling leader (*ibid.*). Formalized relations were established between an *umealiq* (or *umialik*) and his crew. This small group co-operated in the hunt and in the formal division of game that was taken together (whales, walrus, bearded seals, white whales) and agreed on its social and ceremonial activities centred in the ceremonial house, the *karigi* (*ibid.*)

In Alaska "private ownership of an umiak carries decided economic prestige" (Weyer, 1932: 196). At Point Barrow the umiak-owners accumulated property and became wealthy aristocrats holding certain influence over the others and receiving respect for their wealth and superior abilities but associating with the poorer people on terms of social equality (Murdoch, 1892: 429). The crew member was dependent on the umiak-owner for considerable economic and moral aid and occupied a subordinate social place (Spencer, 1959: 144). Still, the umiak-owner was scarcely a chief; if successful, he "compensated for his preeminence by silence, modesty, and, particularly, by generosity, always being careful to avoid giving or taking offense" (*op. cit.*: 162, 165). Further south by the Bering Strait and Sea, the umiak-owner who was a successful trader had wider influence as a recognized leader. Yet his authority lasted only as long as he was regarded as a public benefactor, distributing his wealth, feeding the needy, and giving numerous festivals during the winter (Nelson, 1899: 305). As for the Siberian Eskimo and Maritime Chukchee, Bogoras says the umiak-owners "cannot be called an aristocratic class and their influence in social affairs is very limited" (1904: 631).

The European traders in Alaska looking for "chiefs" to deal with among the egalitarian Eskimos naturally chose men who had some influence and were friendly to the whites, men usually of greater ability and force of character (Nelson, 1899: 304). Such men would be the umiak-owners. Ownership of an umiak could thus be partly instrumental in gaining social preeminence in European eyes and leadership in trade.

RELIGION AND MAGIC

In religious and magical beliefs the umiak was featured most notably in connection with whaling. As this was very rewarding but also uncertain and dangerous, various observances were made to ensure the good will of the spirits who controlled the chase (Weyer, 1932: 345). Elaborate ceremonies and rituals concerned with whaling have been recorded, particularly

from north Alaska where there was a highly developed cult of the whale. In these observances the umiak played a not insignificant part. In north Alaska to prepare for the whaling season the umiak received a complete new cover, made in a special temporary shed. Water was poured on the umiak in one of the rituals of preparation. It used to be carried by the crew to the edge of the ice. Where the sea-ice began, the crew got into the boat to enact the pursuit and lancing of a whale. In a box placed under the gunwale at the bow were whaling charms for the boat and the crew which brought the whale close, made it more tractable and amenable to harpooning, prevented the lines from slipping and fouling, and so forth. In the outdoor feast of the spring festival, umiaks were propped up on edge as windbreaks, but here umiaks were part of a primarily social occasion closing the whaling season (see Spencer, 1959: 332-50).

Siberian Eskimo had a ceremonial of boats early in the spring when the umiak was taken from its winter support of whale bones, high up on the shore, to its portable wooden summer support near the water. Besides sacrifices, processions, dancing, and a shamanistic performance, there was divination with lumps of tallow left overnight in the boat to foretell luck in the coming season, especially in regard to whale and polar bear (Bogoras, 1904: 403-4).

FOLKLORE

To the native, not less than to the white seaman, a craft is surrounded by an atmosphere of romance, built up of tradition and of personal experience. It is an object of cult and admiration, a living thing, possessing its own individuality (Malinowski, 1922: 105).

Perhaps the outrigger canoe of the Trobriand Islanders is surrounded by much more romance and admiration than the Eskimo's open skin boat. However, the umiak does play its part, though usually a humble and prosaic one, in the Eskimo's poetry, song, myth, legend, and tales. It even appears in a string figure (Birket-Smith, 1924: 399).

In Greenland the light speedy kayak would seem to be the more romantic craft, suitable for celebration in folklore; yet, in the prose myths and tales at least, the umiak is mentioned almost as often as the kayak, appearing in every second or third story (Birket-Smith, 1924: 225-35; Holm, 1914: 232-301; Thalbitzer, 1923: 389-453). In the songs from Angmagsalik, kayaks, kayaking, and kayak-men seem to be more celebrated than umiaks (Thalbitzer, 1923). Still, Thalbitzer gives two brief magical formulae for building an umiak and imparting speed to it (1923: 267-8), a song on a supernatural umiak (p. 226), and another that sings about

My darling little umiak,
Now always on land, how deplorable!
About to fall in pieces (p. 359).

In tales from Ungava Bay and Cumberland Sound, south Baffin Land, umiaks are mentioned about as often as kayaks (Turner, 1894: 261-7; Boas, 1901: 163-305, 518-36). But in thirty tales from west Alaska, umiaks occur in only one tale while kayaks appear in six (Nelson, 1899: 452-518). The interesting myths describing the origins of mankind and of certain major sea mammals usually have the umiak and the kayak along with the dog involved in the plots (Boas, 1888: 583-5, 637; 1901: 163-7; Hawkes, 1916: 152; Turner, 1894: 261-2).

And in ordinary day-to-day life the umiak was more than just an impersonal, colourless artifact. To the maritime Eskimo it had emotional meaning as an integral part of life. An old woman at Ivuyivik could recall with some feeling how, when an approaching umiak was sighted, the cry would go up, "Umiak! Umiak! Umiatuinako! . . ." (freely, "A boat! A boat! It's an Eskimo boat! . . ."), for that shout meant visitors coming along the coast, rowing the truly Eskimo boat, singing; to the umiak the old woman nostalgically related a whole way of life of times gone by.

PART II

THE IVUYIVIK UMIAK

Materials

GENERAL REQUIREMENTS

Wood for the framework and skins for the cover are the two basic raw materials needed for making an umiak. Other requirements are thread for sewing the cover together, thongs for lashings, and ivory or antler or bone for small hard parts like pegs, halyard pulley wheels, mouthpieces for inflating skin floats, and so forth. Tools are nowadays metal-edged and are of European origin. The Ivuyivik umiak was made with handsaws, hatchets, chisels, jack plane, files, brace and bit, a C-clamp, needles, and pocket-knives. Metal-bladed ulus, or "women's knives," were about the only Eskimo tools used. Measurement was by eye and, more rarely, by hand-lengths, forearm-lengths, arm-spans, and foot-lengths. Pencils were used for some markings such as the spots to bore holes for lashings and, together with string, the lines for ripping logs.

GATHERING DRIFTWOOD AND BEARDED SEAL SKINS

At Ivuyivik in 1960 it was planned to make the framework of driftwood and the cover from the skins of the *udjuk*, or bearded seal (*Erignathus barbatus*). During the spring there was an element of uncertainty about the prospects of securing driftwood and *udjuk* in sufficient quantities. Of driftwood, the principal umiak-builder, Ainalik, had not accumulated more than a couple of logs through the winter because it is not always easy to get around Ivuyivik and he was not absolutely sure that the white men wanted an umiak until their representative arrived at the end of April. Since timber for umiaks had formerly been obtained from the Koksoak River flowing into Ungava Bay, a request for some spruce trees was written in May to a government official at Fort Chimo. However, he was unable to find a means of transportation for the timber from Fort Chimo to Ivuyivik. Sufficient driftwood was not accumulated by summer, and some umiak parts had to be made of dressed lumber.

Getting enough bearded seals caused greater anxiety through the spring. The skins could not be accumulated over the year as old skins are too hard to sew, and, besides, the skins are always in demand for boot soles and line. *Udjuk*, bearded or square-flipper seal, is a large seal, about seven to eight feet long, which basks on ice pans over shallow waters in the spring. At Ivuyivik, *udjuk* is most successfully hunted in the latter half of June and in early July when the sea usually opens along the coast and large ice pans frequented by it are close by. Then if the hunters can get to the ice pans in favourable weather, a dozen *udjuks* can probably be taken in a few days. The element of uncertainty lies in the ice locking the bay in front of the settlement. Would the ice go out and allow the boats

to be launched before the season advanced too far taking the ice pans with the ujuk out of reach? In some years the ice left the bay in mid-June; in other years, as in 1959, it stayed into July. In 1960 the ice left in early June, and more than enough ujuks were taken in two weeks.

On June 19th the "Aivek," a Peterhead boat with a two-cylinder Acadia gas engine, left Ivuyivik in the evening carrying a crew of eight and a kayak, and headed southwest seeking ujuk, driftwood, and coal and lumber in an old shipwreck on north Mansel Island. The ice was not far off. Approaching it the next day, the "Aivek" caught the first ujuk swimming in the water. The ice provided three more ujuks that day but blocked the way to Mansel Island making the "Aivek" turn back for Ivuyivik. The fifth ujuk was shot in the water off west Digges Island. After a few hours at the settlement on June 22nd the "Aivek" set out again with a new captain, the ageing owner being replaced by his eldest son. An extra youth also came along. The weather was calm but often foggy. The next day on large ice pans about half-way to Mansel, five ujuk were killed. The following day three more were taken on the ice, but two of them were too young for umiak purposes, and as the third was a teenage boy's first ujuk, it had to be distributed in the community. On the last weekend in June the "Aivek" returned to Ivuyivik. The week had produced ten skins for the umiak. Ten seemed sufficient for an umiak cover, but in hopes of getting still more of the valuable bearded seals while they were accessible, the "Aivek" set out again on June 27th with a crew of ten. This trip had little luck. Wind forced the boat to anchor the first day. Fog prevented travel the second day. The third day brought fine sunny weather. The "Aivek" reached the east side of Mansel Island through a narrow open passage in the ice. Three ujuks were killed on the ice in a couple of sunny hours. Then for the next two days the "Aivek" was blocked by the ice. On July 2nd the boat worked out to open water and headed at once for Ivuyivik since sugar had run out. The week had produced only three skins for the umiak. In the same week, Ivuyivik's other Peterhead boat, the "Nanuk," had taken eleven ujuk in half the time. Such is luck in hunting.

Skinning was done by slitting the skin down the middle of the ventral side from the belly to the ends, as in smaller seals. Another method of skinning for umiak covers was described by the oldest woman at Ivuyivik. She said two slits used to be made along the lateral sides of the ujuk from the front flippers to the hips and that the body used to be taken out through the slits. This method was said to avoid humps in the skin at the front flippers.¹ It was tried out on the first ujuk taken, but after the two slits were made along the sides, the men felt dubious about taking the body out through them and continued the slits to the ends.

To store the skins for a month while the framework was being built, a pit was dug four feet deep in the sandy beach at Ivuyivik, about fifty yards above the high tide line. The oily undressed skins were sewn into burlap bags and buried in the pit next to the frozen gravel. To discourage curious dogs the pit was covered with some old sheet metal, weighted down with heavy rocks, and an old unused punt was placed upside-down over the pit to keep the sun off and to mark the location.

¹Boas says, "The skin of the back and of the breast dries unequally, and therefore a piece covering the throat and breast is taken out before the rest is skinned, and the parts are dried separately" (1883: 521).



Skinning an udjuk by cuts in the sides

Driftwood had also been collected during the udjuk hunting. The largest piece found was a log 20 feet long, which later became the gun-wales and bilge stringers. Other wood included several large branches and two logs a few feet in length picked up at Mansel Island.

METHODS OF HUNTING UDJUK, OR BEARDED SEAL (*ERIGNATHUS BARBATUS*)

In the early summer, udjuk were taken in three ways. In good weather a lookout with binoculars would be hoisted up the mast of the Peterhead boat. The udjuk would be spotted basking on the ice pans or swimming in the water. The easiest way to get an udjuk was to approach it by boat as it slept near the edge of an ice pan. According to the Ivuyivimiut (people of Ivuyivik), the udjuk's sight and hearing were supposed to be acute, but the Peterhead with its noisy two-cylinder Acadia gas engine could get quite close without alarming the animal. Freuchen says that the udjuk



Looking for udjuk

has "extremely keen eyesight but is hard of hearing" (1935: 200). When an udjuk is found on the edge of the ice in an accessible location, unnecessary talk ceases; several men cock their rifles—.30/30's, .300 Savages, .303 Lee-Enfields, and even .22 Hornets—and take up positions on the bow, those in the back standing while two or three in front sit on the raised hatch with elbows braced on both knees, or kneel in their favourite position, right knee down, left knee raised to support the left elbow. When the Peterhead is within about a hundred yards of the udjuk, which may now be curiously looking around, the captain, who is at the stern, steering with his foot on the tiller, tells the "mechanic" down below to cut the engine. The engine stops, usually with an alarmingly loud backfire on the "Aivek," and the boat silently glides in to the udjuk. At about forty yards or less the rifles roar almost simultaneously, and the udjuk sags dead from a bullet in the head. Usually the best shot fires first, and the rest a split second later. Five bearded seals were shot in this manner from the "Aivek"; none were lost because they were only wounded. However, one did escape into the sea as the Peterhead coasted in for the kill when a rifle discharged accidentally while being cocked (Thereafter I had a front seat.). Once a kayak was launched after a basking udjuk, because bits of floating ice prevented a direct and noiseless approach by Peterhead. Cautiously the kayaker picked his way through the little ice cakes, using them as blinds. The udjuk was killed, but was lost when it slipped the noose while being hoisted onto the "Aivek." Everyone laughed.



Hoisting the udjuk onto the "Aivek"

A second way to take udjuk is by stalking a basking animal on a part of an ice pan inaccessible to boats. In sunny weather more than one udjuk may be spotted on a large pan. When the Peterhead stops at a place from where the stalk appears to be easiest, it is tied up to a harpoon shaft planted in the ice. The hunters set out on foot with their heavy rifles and a harpoon line or two, leaving a couple of men behind to run the Peterhead. Usually two or three men stalk an udjuk together, proceeding in single file, the lead man testing weak-looking spots, the others following in his footsteps. Care is taken to stay downwind from the udjuk, to keep out of its sight, and to move as quietly as possible. The stalk usually takes devious routes, as hummocks of snow and ice are used for cover and as deep pools and dangerous spots in the melting ice pan are circumvented. Finally, after the closest possible approach is attained, usually within about fifty yards of the udjuk, the hunters fire for the head. Freuchen writes the following about udjuk on ice:

Whereas a fjord seal usually lies with an open outlook to all sides, the bearded seal is never afraid of lying on the ice in the shelter of a hummock, and sometimes one can get within range by using the hummock as cover and crawling up over it, whereby the quarry is brought directly below. It never looks upwards, and the noise one makes when moving on the hummock does not affect it, or it does not even hear it (1935 : 225).

A line or two is attached to the dead udjuk by slits cut with a pocket-knife in the front flippers or the upper lip, and the heavy seal is dragged to the edge of the ice by the shortest safe route to meet the Peterhead boat, which comes chugging over. The "Aivek" took nine udjuk by stalking on

the ice. A couple of stalks failed. The first stalk was made from two directions by two parties of hunters approaching two uadjuk lying by the same hole in the ice. One party was in position, waiting for the other party to reach theirs when the big seals took alarm and dove to safety under the ice. To kill two uadjuk together is not always easy.

The third way in which uadjuk were hunted from the "Aivek" was by shooting at one swimming at the surface. A calm sea is preferable because the surfaced uadjuk's head can then be seen more easily without distracting waves, and the boat is steadier for shooting. Since an uadjuk often sinks when killed, the object is only to wound until it can be harpooned. When first spotted, a swimming uadjuk is often quite a distance away, perhaps a couple of hundred yards. A rifle or two fire hastily and miss, whereupon the uadjuk dives. The Peterhead goes over to the spot where it dove and slowly cruises around waiting. After a while the uadjuk is seen again, often in an unexpected quarter. Rifles swing around and fire; the uadjuk dives. The waiting is repeated and seems interminably long, though perhaps the uadjuk stays under for only ten or fifteen minutes. Each time it surfaces, the rifles fire, and it dives. If a shot comes close, the uadjuk may leap into the air and plunge underwater with a big splash. As the firing procedure is repeated three or four times, the uadjuk becomes exhausted and surfaces more frequently for longer periods and within closer range. If it keeps surfacing in the vicinity of the boat, it is hit sooner or later. Sometimes it dives, and the hunters do not see it again although they may wait a good twenty minutes before giving it up. At closer ranges, say, under a hundred yards, .22's are favoured. To avoid a killing shot, heavy rifles are aimed at the back and rear, which are visible when the uadjuk arches over to dive. Also the back is often visible when the uadjuk is swimming about at the surface. Shotguns may be used to wound the face, a method which is said to make the seal surface oftener and longer as the salt water is painful in the wounds. A wounded and exhausted animal finally wallows at the surface allowing the Peterhead to come up close. As it is harpooned, it is killed by shots in the head. A rope noose is slipped around the body under the fore-flippers, and it is hoisted aboard. Only two out of the sixteen uadjuk taken by the "Aivek" were shot in the water. When one of the two sank in the shallows beside west Digges Island, it was jigged up with a weighted three-barbed hook. Several other swimming uadjuk were pursued without success. Freuchen writes,

When the open water in summer has reached the grounds and the seal leaves the ice, it is no longer so shy as when lying on the ice; and the curiosity of which it is possessed is famous. If in a boat one sees a bearded seal far away it is sometimes possible to attract its attention by sending a bullet near to it, and as a rule it will then approach in order to see what is going on . . . its great sparkling eyes which it turns towards the boat clearly indicate that it is very interested. Even if one shoots at it it never becomes scared if it is not hit (1935 : 225-6).

Kayaks also set out from the settlement after uadjuk when they are sighted through telescopes or binoculars on nearby ice pans in Digges Sound within a six- or eight-mile range and when the weather is good. A kayak is much more limited in range and carrying capacity than a Peterhead boat. There is an element of danger in kayaking amidst moving ice and strong currents which shift by wind and tide, often in contrary directions to each other. At Ivuyivik, kayaks were large, about 23 feet

long, and were heavily built with flat bottoms. An udjuk could be carried inside behind the paddler. If three or four were taken in a long day's hunt, all save one might be cached on one of the many small islands in Digges Sound, to be picked up later.

Few udjuks were taken in the open water near the settlement itself as, according to the missionary, the current along the coast is too strong for them. Possibly the water by the settlement is too deep for the udjuk which feeds on bottom animals on shallow banks (McLaren, 1958: 8). Sometimes one is seen swimming by the point at the entrance to the bay in front of the settlement or in the bay itself and may be shot at from shore or pursued by kayak.

In mid-August of 1960 udjuk were again taken in number off Nottingham Island about fifty miles north of Ivuyivik. The Peterhead "Nanuk" got seven udjuks there on its walrus hunt.

In the early spring a few udjuk may be taken by trappers travelling over the ice along the coast to the south of Ivuyivik. In sunny weather the udjuk basks beside a hole or crack in the ice. When the sea-ice is smooth, it may be seen from a couple of miles distance, but it can see you as well. A white cloth shooting-screen may be useful. In mid-May of 1960 three sleds with half a dozen men were out for a week along the coast to the south of Ivuyivik and returned with only one udjuk. However, these men were not expressly after udjuk.

WHITE WHALE

The white whale, or beluga (*Delphinapterus leucas*), is important in the construction of the Ivuyivik umiak because its sinews are used to sew the skin cover together. At Ivuyivik the white whales come by in numbers about the end of May and head southwest through Digges Sound into Hudson Bay. Most of them are taken in June when there is an open passage along the coast while ice jams the straits north of Digges Island. In good weather when the point by the settlement is free of ice, the men watch from the hill through the long day. When several "kilalugak," as they call the white whale, are seen approaching, the men try to scare them in to the point with rifle fire. In calm water the paths of the white whales are marked by streaks. Sometimes one that is close and near the surface can be seen swimming from a height. They are shot at relatively short range in the head or neck when they surface. Freuchen says that a white whale will float only if shot and paralyzed on the way up. If it has already arched over on its way down when shot, it will sink as it has exhaled the spent air and has not had a chance to inhale (Freuchen, 1935: 268). After they are shot, the white whales are retrieved by kayaks or, sometimes, are blown in to shore by a favourable wind. They are then towed to the settlement for communal butchering. Many sink after being shot. A few that sank near shore in shallow water were retrieved by grappling. In July the white whales are said to pass north of Digges Island as the straits are then open. In the autumn they are taken in numbers again to the southwest of the settlement. Heavy nets are sometimes used.

Construction of the Framework

At Ivuyivik in 1960 the umiak framework was built in an upside-down position, starting with the gunwales and the thwarts, generally paralleling the construction of a kayak. A flat level stretch of well-drained gravelly ground at the south end of the settlement was selected as the construction site. Three older men built the framework. In charge was Ainalik, an energetic craftsman in his late fifties. Assisting him were Markossie Iyaitok, a capable worker about fifty years old, and Oshuadjuk, a mild man considered old and a bit inefficient though only in his mid-fifties.

Driftwood was used in making the gunwales, bilge stringers, side stringers, side ribs, floor-timbers, keel, and heel, a block of wood joining the keel to the stern-post. Old dressed lumber was used for the thwarts,

PLATE IX



Splitting line

the thwart blocks at the ends of the boat, the stem- and stern-posts, and the fore-foot, a substantial piece of wood joining the keel to the stem. These wooden parts were lashed together with uduq line, both old and new. Much of the line used consisted of old dog traces, softened by chewing and usually slit lengthwise once with a sharp pocket knife to form lines approximately one-quarter inch thick. About a thousand feet of uduq line, both thick and thin, was used in making the umiak, complete cover and accessories.

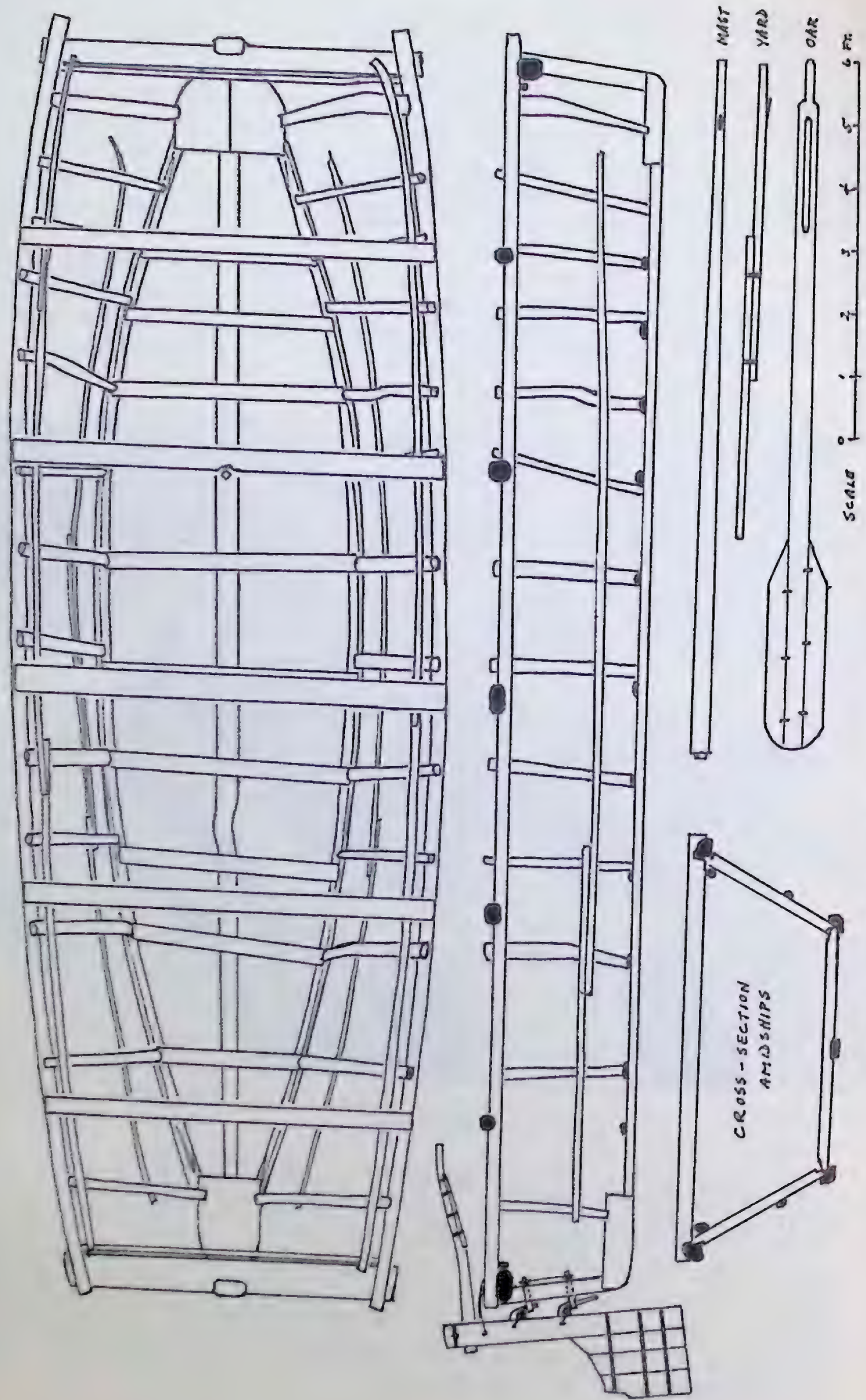


FIGURE 1. Umiak built at Ivuyivik, P.Q., in 1960, plan of framework

RIPPING OUT THE GUNWALES AND BILGE STRINGERS

On Monday, July 4th, the actual construction began. The heavy 20-foot log gathered by the "Aivek" was carried over to the construction site. Ainalik, the master umiak-maker, sharpened and straightened a handsaw borrowed from the Roman Catholic Mission. It was decided to make the umiak only as long as the log since there was a shortage of driftwood. On Tuesday, after considerable reflection, Ainalik marked out the log for ripping, using a pencil and a string stretched from nails placed in the ends of the log. He had to avoid a weak rotted bit at the thicker end of the log and to utilize a gentle curve in the thinner end. He planned to use the thinner end at the stern. After marking the log, Ainalik changed his mind and re-marked it with red pencil. Over the next three days Ainalik halved the log lengthwise. The work went slowly because the

PLATE X



Ainalik ripping a 20-foot driftwood log into quarters

weather was bad (foggy and rainy at times), and because ripping with a cross-cut-edged handsaw is a difficult task. (Incidentally, the annoying mosquitoes are comparatively scarce at Ivuyivik.) Ainalik worked alone. Oshuadjuk was away at Eric Cove with his kayak, perhaps hoping to get an udjuk. Iyaitok also was absent, probably on a visit to the neighbouring settlement of Sugluk.

On the weekend, Ainalik took time off from the umiak project in order to carve soapstone for the annual visits of the government ice-breakers. However, in the following week besides carving little walruses he ripped the halves of the 20-foot log into quarters. Two of the resulting timbers were then immersed in a nearby brook to soak for bending into bilge stringers. Then the ships with the annual supplies and medical services arrived and interrupted the work routine of the settlement for a week.

ASSEMBLY OF THE GUNWALES, THWARTS, AND THWART BLOCKS

As Iyaitok and Oshuadjuk joined Ainalik in the last week of July, work proceeded rapidly despite wet windy weather. The thwarts and thwart blocks were made from 4- by 4-inch and 4- by 6-inch dressed lumber, sawn to size and rounded off with hatchets in an attempt to simulate rough hewn logs. On the stern thwart block, shallow grooves for the gunwales were cut three-quarters of an inch deep at a slight slant across the ends and spaced five feet apart. In the centre of this thwart block's trailing edge, a dovetail notch was cut for the stern post. The thinner ends of the gunwales were temporarily lashed into the grooves. A timber a little over six feet long was placed between the gunwales to spread them apart amidships. A rope was tied around the free ends of the gunwales and tightened to bend them in to form a 5½-foot beam at the stem. Another rope was tied around the gunwales between the centre spreader and the stern thwart block. From the rope at the stem, another rope was run longitudinally down the mid-line of the boat to the centre of the stern thwart block. The top shape of the umiak being formed, the five thwarts and the stem thwart block were spaced out a yard apart on the gunwales and marked for grooving at their ends. At this earliest stage the boat was being built right-side-up. The notches in the thwarts were cut about 1½ inches deep; those in the stem block were cut only half as deep. Holes of one-quarter inch in diameter were bored with an auger, and the seven transverse beams were lashed to the gunwales. All these beams were made from 4- by 4-inch lumber, except the centre thwart and stern thwart blocks, which were made from lumber 4 by 6 inches. The gunwales had a 2½- by 3-inch rectangular cross-section at the stem and a 2½- by 2½-inch triangular cross-section at the stern with the rounded surface to the outside. Ainalik said that these gunwales were a bit too thin. As in the kayaks at Ivuyivik, the gunwales were to be the principal longitudinal timbers.

LASHINGS

Lashings are generally put in as follows: holes one-quarter inch in diameter are drilled in the two parts to be joined together. If the lashing is to be sunk below the surface of the wood, grooves are cut about half

an inch wide and three-quarters of an inch deep with chisel and knife. Then the softened udjuk thong has a loop, perhaps an inch long, made in one end by a cut splice or a bowline knot. The thong is passed through

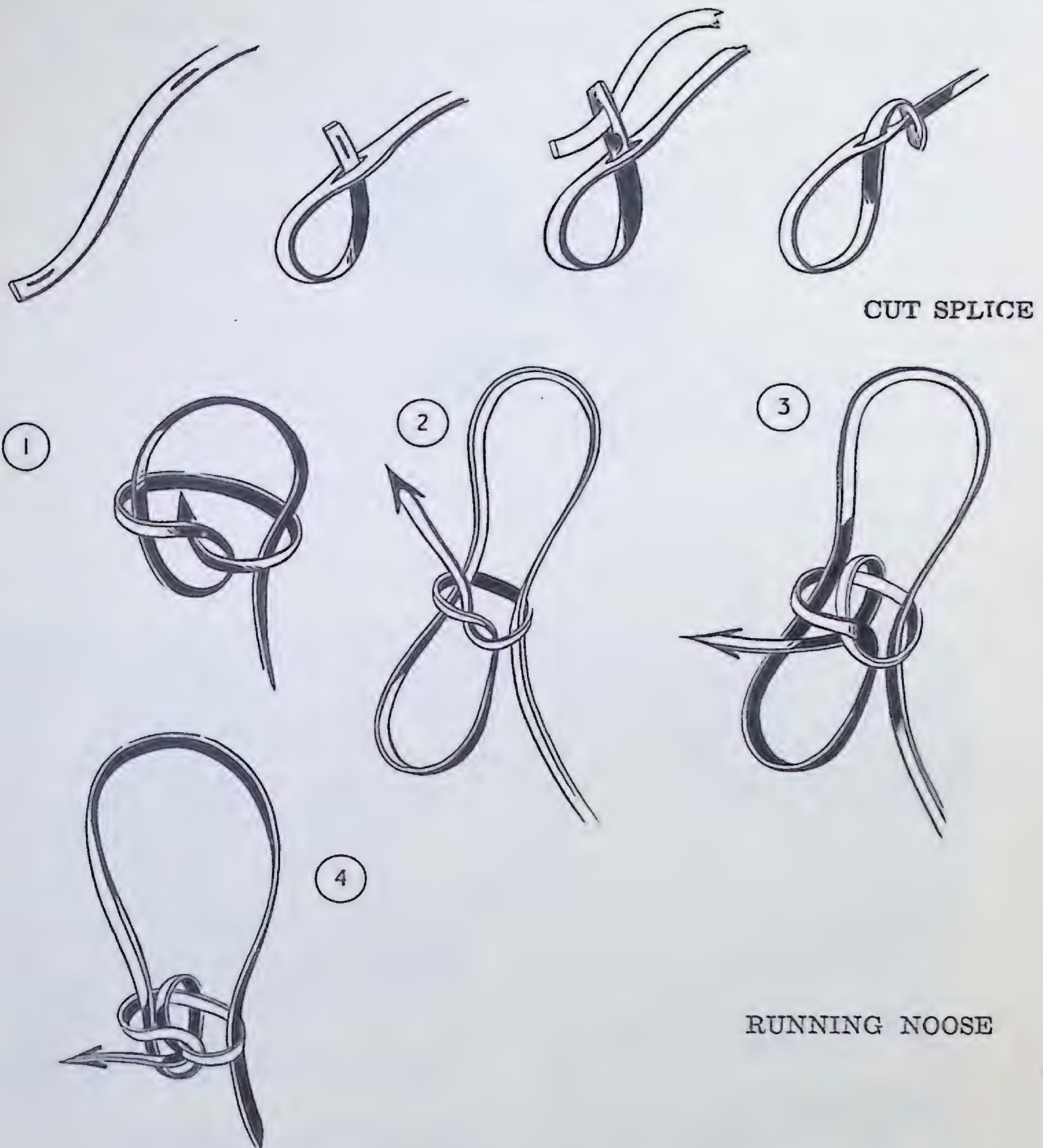


FIGURE 2. Manner of making loops in the end of a line

the holes bored in the parts to be lashed together and in through the loop at its end. The resulting noose is tightened forcefully. The free end of the thong then is threaded back through the holes the way it came and

into its previous bend through the terminal loop. Again the thong is drawn as tight as possible. The process may be repeated a couple of times more, until the holes are filled or until the thong runs short. The thong is knotted by tightly winding the free end around the previous runs through the holes, and finishing with a half hitch. To prevent the end from slipping out of its half hitch, it may be turned through a slit in itself.



FIGURE 3. Termination of a lashing

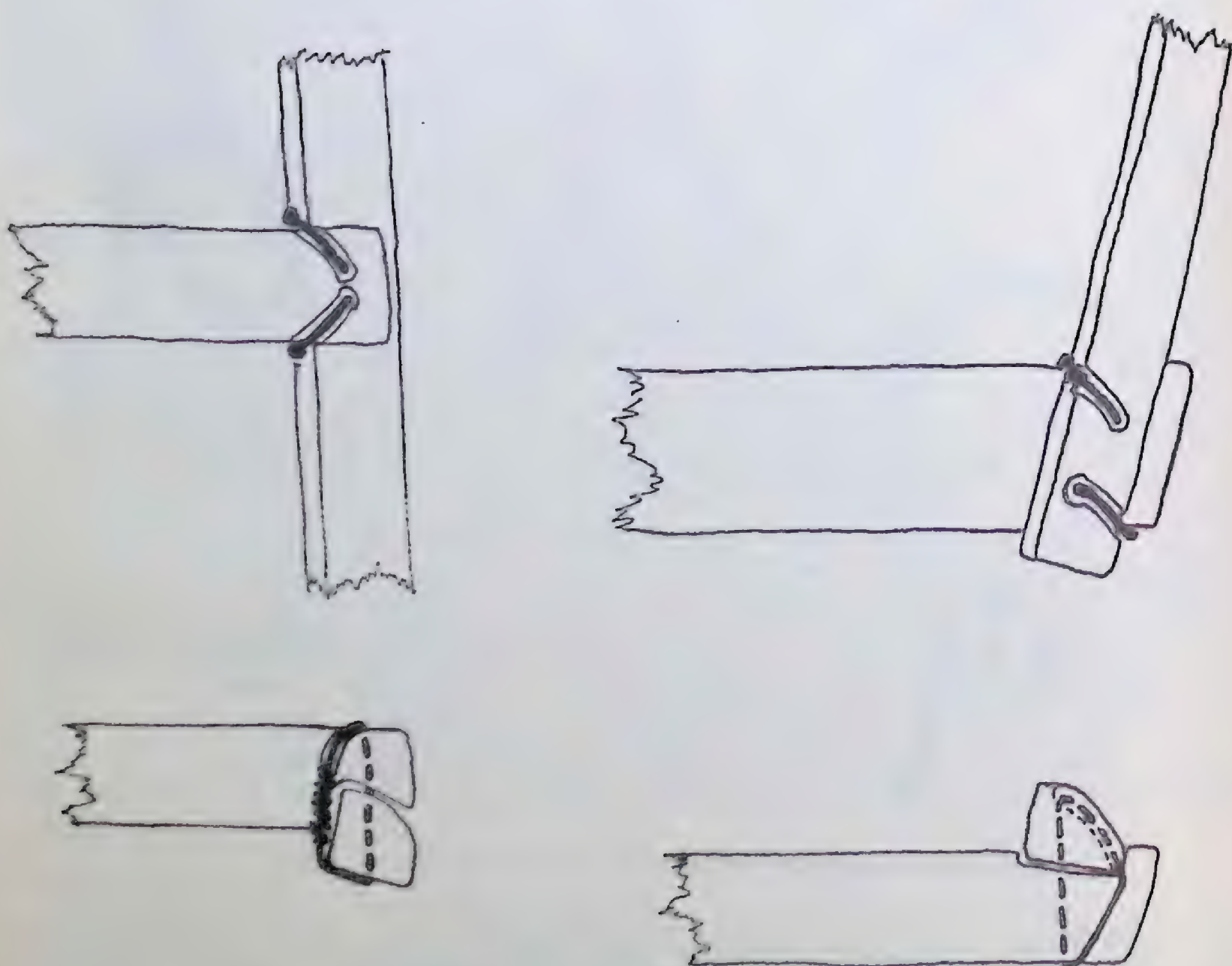


FIGURE 4. Lashing of gunwale to thwart and thwart block

The thwarts were lashed to the gunwales by two thongs passing through a pair of holes bored vertically down, an inch apart, through the thwart ends and into the gunwales. The end thwart blocks were fastened to the gunwales by two staggered lashings running through holes drilled about two inches apart.

When work was done for the day, the fragrant new lashings along the gunwales were wrapped in rags, and the boat was covered with scrap lumber to keep off the dogs, which, fortunately, were well fed at Ivuyivik. Ainalik suggested that formerly when camps were smaller and dogs fewer, the dogs might be tied up; or the umiak might be built on an island; or the dogs might be put on an island. Foxes also might eat the lashings at night. To raise the umiak out of reach of the dogs, one would have to raise it six feet off the ground.

STEM AND STERN

The stem- and stern-posts were made from 4- by 6-inch lumber almost two feet long, roughly rounded off. At the top ends of the posts, tongues about 4 by 3 inches in cross-section were made to fit into the 1½-inch deep dovetail grooves, cut in the centres of the thwart blocks at their outer edges.

Two solid blocks of wood were prepared to join the stem- and stern-posts to the keel. In this report the block at the stern will be referred to

PLATE XI



Early stage of construction



The fore-foot

as the "heel." At Ivuyivik it was called "niahoyak," meaning the head of the white whale, which it resembled in size and shape. It was made from a driftwood log semi-circular in cross-section and was $1\frac{1}{2}$ feet long by $10\frac{1}{2}$ inches wide by 5 inches thick. The round side was the under surface. One end was rounded off to form a smooth rear surface for the skin cover to curve around. In the edge of the flat upper surface, a wide rectangular notch was cut to receive the stern-post. In the round bottom surface, three more notches were cut for the ends of the keel and bilge stringers. Then two notches were cut in the edge of the upper surface to receive the bottom ends of the side ribs at the stern. A total of six notches were cut in the heel.

The "fore-foot," joining the keel and the stem-post, similarly had six notches cut into it. This block of wood was twice as wide as the stern one, measuring $20\frac{1}{2}$ inches wide by $3\frac{1}{4}$ inches thick by $1\frac{1}{2}$ feet long. As it resembled the front flap of a woman's parka, it was accordingly called



A. Temporary keel



B. Lashing in the first ribs



A. Ripping out the keel



B. Oshuadjuk grooving a bilge stringer



Floor-timbers temporarily in place

"kiniq." It was made from two pieces of 10-inch-wide planks, butt-jointed together with four lashings and dowelled inside.

The framework was now being built upside-down. The fore-foot and heel were each fitted on a tripod, formed at each end of the boat by a pair of ribs and the stem- or stern-post. Photographs explain better than words the arrangement of parts and the lashings.

The junctures of the fore-foot and heel with the stem- and stern-posts were not lashed until the keel and the six primary sets of side ribs and floor timbers were in place. Leaving these joints unlashed made it possible to move the fore-foot and the heel slightly to make the adjustments necessary in fitting on the keel.

PRIMARY SETS OF FLOOR-TIMBERS AND SIDE RIBS;
PREPARATION OF KEEL AND BILGE STRINGERS

The next step was to put in the first sets of floors and ribs. To help visualize their sizes and spacing, a temporary keel was laid on the fore-foot and heel. There was a pause in the work as Ainalik thought a bit about the best way to proceed with the construction. The actual keel was soon put in

place. Ripped from a long, thin, slightly crooked log, it was about 17 feet long, 3 to 5 inches wide, and 2 to 2½ inches thick with the flat surface to the bottom of the boat, to rest against the skin cover later. The bilge stringers, 2½ by 2 inches, were taken out of the brook and grooved along the rounded surface to a one-inch depth for retaining the ribs and floors.

Six floor-timbers were temporarily tied onto the keel. These were made from driftwood saplings, ripped once to give a flat surface, which rested against the keel; they were about 3 to 3½ inches wide by 1½ inches thick. Some were later notched to about half an inch depth to fit onto the keel. The floors were set flat against the keel, unlike those in Greenland umiaks, which are set on edge. Six pairs of side ribs were erected from the gunwales, facing the six floors with which they were to be joined. Each rib was notched on the side near what would eventually be the top end to fit over the inner side of the gunwales. Most of them protruded about two

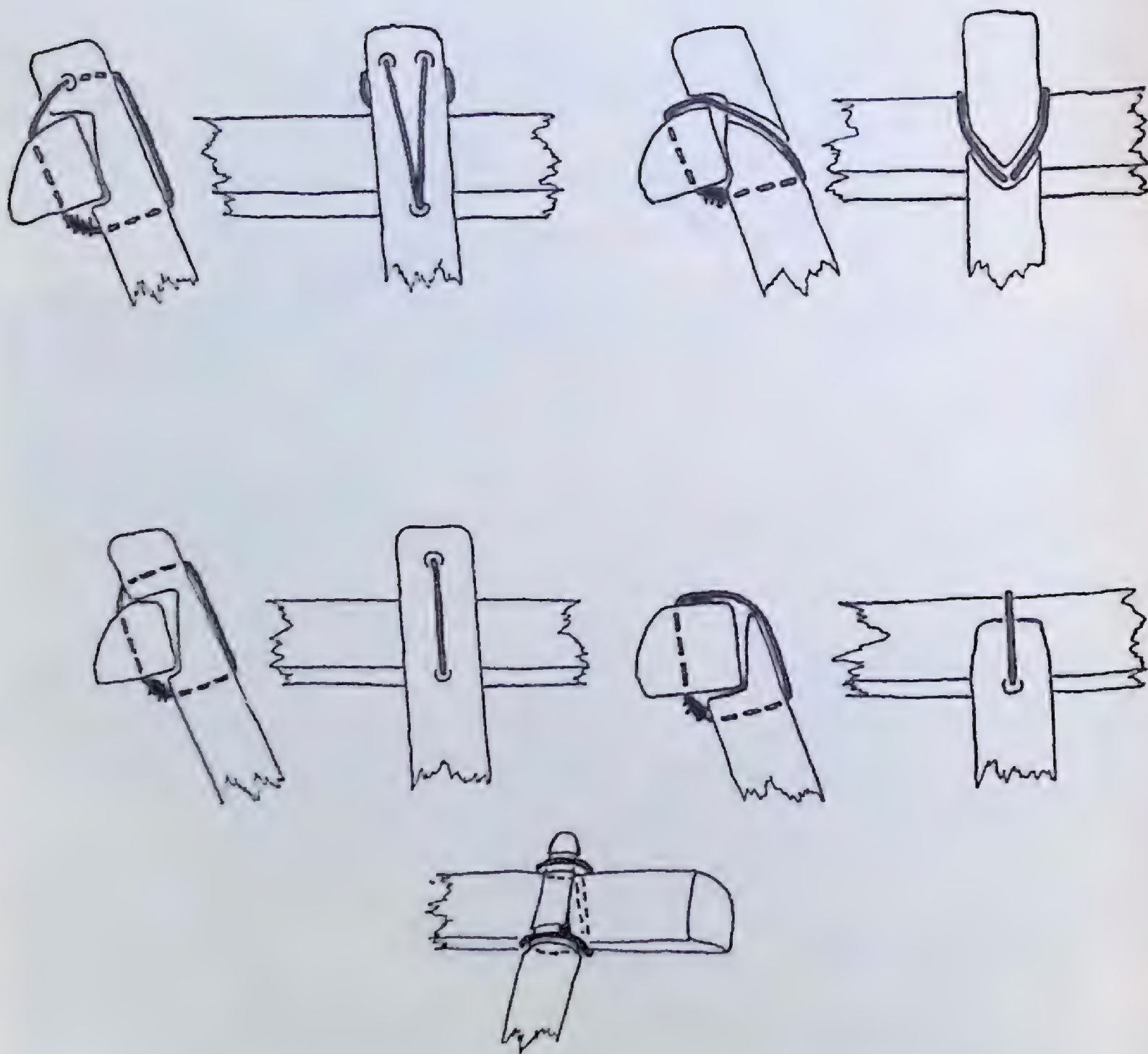


FIGURE 5. Different ways in which ribs were lashed to gunwales



Lashing a rib to the gunwale

inches past the upper edge of the gunwales, but these protrusions were unobtrusive while the framework remained in upside-down position. The ribs were lashed to the gunwales in four main ways.

Next, each rib was lashed to a floor-timber. The end of the rib was notched to fit on the end of its crosspiece. A single lashing ran through holes in the ends of the rib and floor. These two holes were connected by a groove to house the lashing below the surface of the wood and to keep it from protruding into the skin cover.

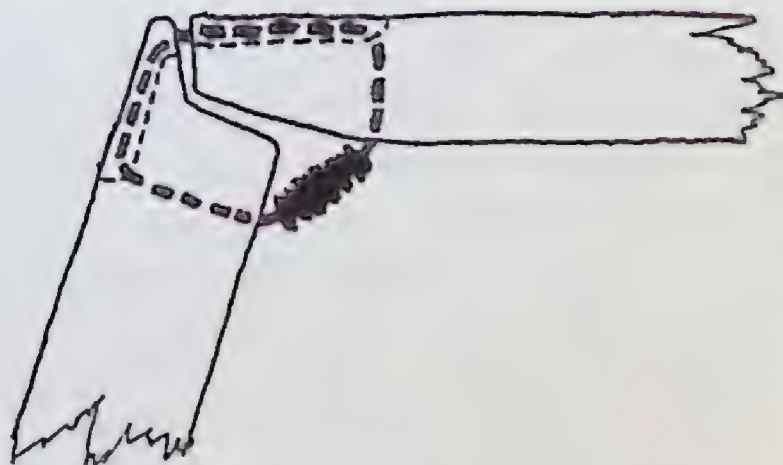


FIGURE 6. Lashing of rib to floor



Lashing on the keel

KEEL

At the fore-foot and the heel, the keel was fastened by a single lashing running through a pair of holes connected by a groove on the keel's under surface to keep the lashing from protruding into the skin cover. More paired holes were bored in the keel at the floor-timbers, straddling them closely. Each pair of holes had a connecting groove cut in the under surface of the keel to house the lashing. To steady the keel on the primary sets of floors and ribs, a long line was pulled tightly over it and around the gunwales on each side. This is also done in kayak construction. Any gaps between the keel and the floor-timbers were filled with thin wooded shims. Each floor was then lashed to the keel.



Ainalik working

BILGE STRINGERS

In the first week of August the grooved bilge stringers were put on the framework, running between the fore-foot and the heel along the angular junctures of the primary ribs and floor-timbers. Each bilge stringer was held on by loops of udjuk line passed around it and the diagonally opposite gunwale. Other loops ran from the stringer to the gunwale below it or to a thwart. Still more loops connected the bilge stringers to each other. As these loops were twisted tight with sticks, the bilge stringers were gradually bent in at the ends to form the streamlined shape of the bottom of the umiak. In order to have a smooth even curve in the bilge stringers, some of the primary sets of ribs and floors were shifted slightly off the perpendicular to the keel. The excess at the ends of the stringers was sawed off, and the ends were then fitted into their notches in the fore-foot and heel. When the curve of the bilge stringers had been adjusted satisfactorily, the stringers were lashed into place. By each juncture of rib and floor, a hole was bored in the bilge stringer. A groove was



Iyaitok lashing the fore-foot to the stem-post

cut at a slant from the hole to the edge on the outer surface of the stringer. The lashing passed through the hole, along the groove, and around the juncture of the rib and floor over the lashing of the latter parts. The ends of the bilge stringers were lashed into their slots in the fore-foot and heel to complete this difficult stage of the construction. Then most of the jungle of twisted thongs was removed.

ADDITIONAL RIBS AND FLOOR-TIMBERS

Five sets of additional ribs and floors were placed in the intervals between the primary sets. Each rib and floor did not directly fit into each other at the bilge stringer but lay side by side. The rib or floor was lashed to the bilge stringer by a thong around its end, passed through a pair of holes drilled in the stringer, and connected by a groove to house the lashing on the outer side. These additional ribs and floor-timbers were lashed to the gunwales and the keel, just as the primary ones were. The framework now had a total of 11 floor-timbers and 26 side ribs. Any splits in the wood were tightly bound.

INNER AND OUTER STRINGERS

In the second week of August, while the skins were being dressed and sewn together for the cover, the inner and outer stringers were added to the framework. For the pair of outer stringers, five rather thin branches



Top: Bending the bilge stringers into place; Bottom: same

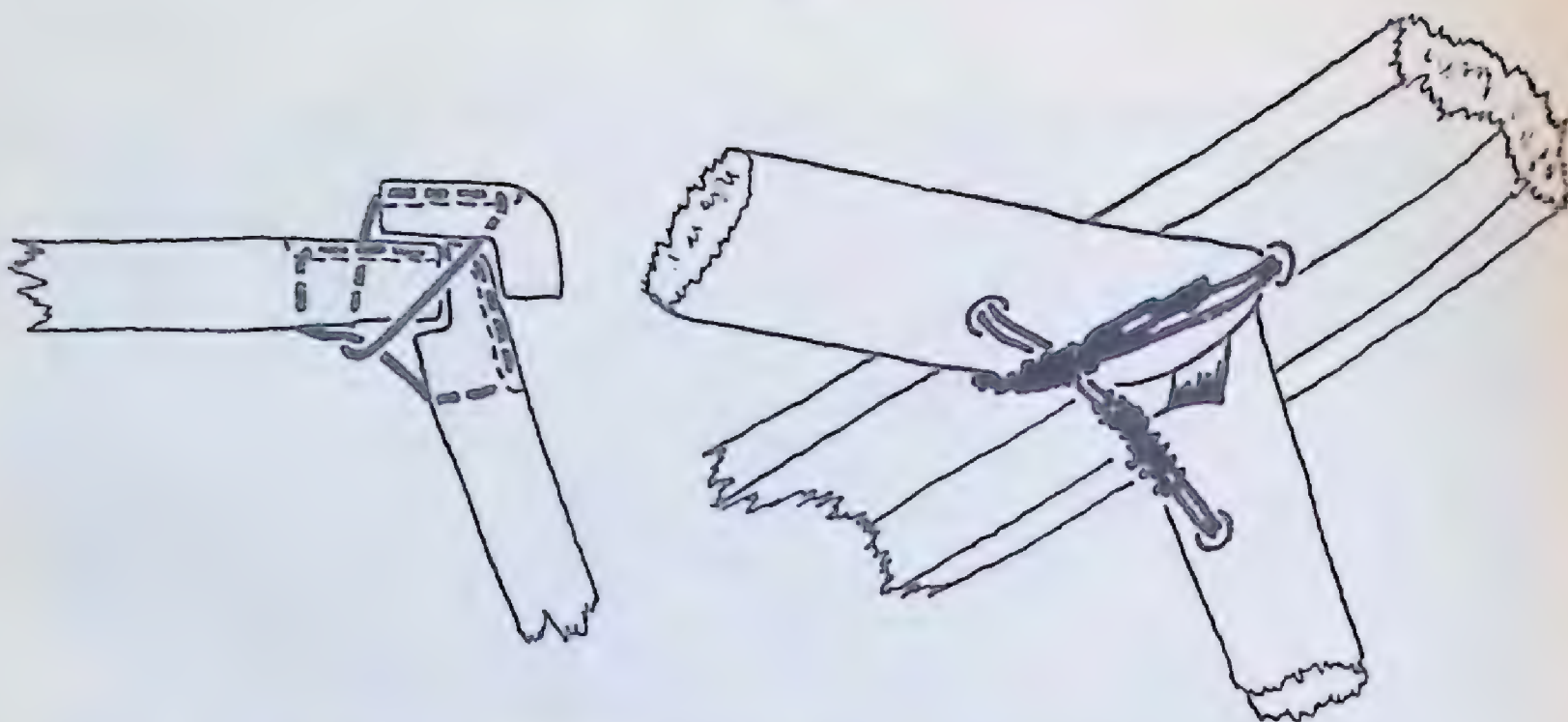


FIGURE 7. Lashing of bilge stringer to juncture of rib and floor

were scarfed together and tied on the outside of the ribs a bit closer to the bilge stringers than to the gunwales. The outer surface of these branches was smoothed flat with a hatchet as they were to keep the skins off the ribs. For the inner stringer, nine poles of assorted sizes, $1\frac{1}{2}$ to 3 inches thick, were scarfed together and lashed on the ribs inside the framework just below the thwarts. Poles were also lashed on just inside and below the thwart blocks at the ends of the boat. This inner stringer was to hold the thong loops lacing the cover to the framework.

To finish the framework, the projecting ends of the thwarts and thwart blocks were sawn off close to the gunwales. Any unevenness on the forefoot, heel, keel, and bilge-stringer surfaces that would contact the skin cover was smoothed with hatchet and plane. Two holes were bored in the stern-post for the antler rudder "eyes," or gudgeons. The second thwart was slightly notched for steadying the mast, and below it a $1\frac{1}{2}$ -inch square mortise was cut in the keel as a mast-step to hold the bottom end of the mast.

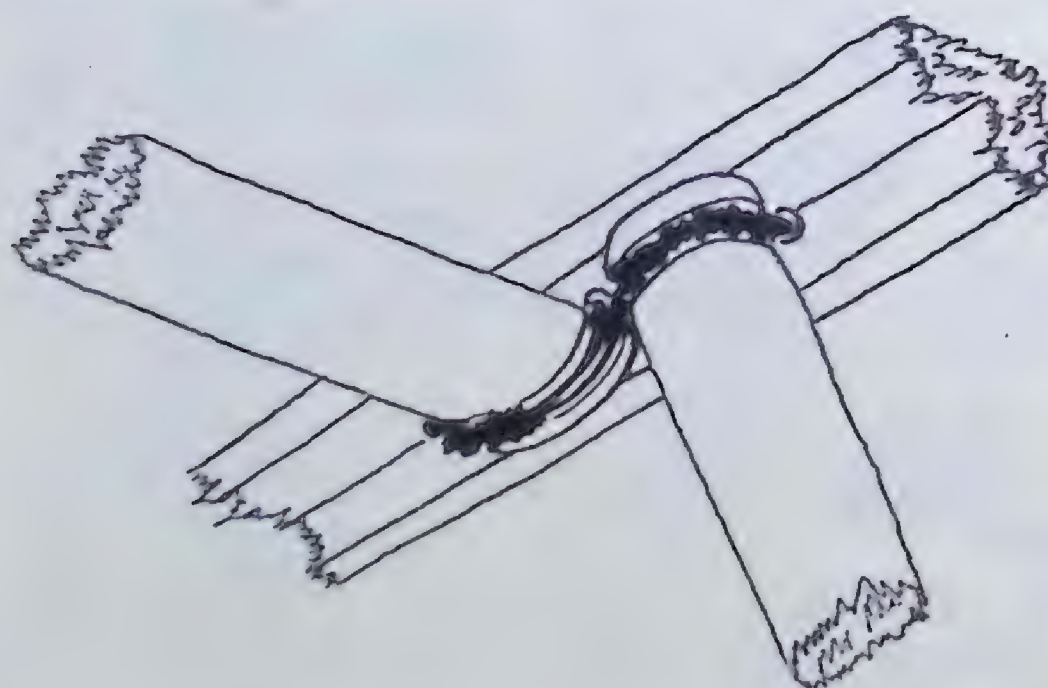


FIGURE 8. Lashing of additional rib and floor to bilge stringer



Sizing up for an additional rib

Covering the Framework

PREPARING THE SKINS

On August 9th the udjuk skins were dug up from the pit in the beach. They were washed clean of sand in the handy brook beside the umiak construction site. In a spare tent, ten women, using ulus and teeth, removed the fat, the hair, and the black epidermis from the skins, working on tilted boards two feet square. The process was called "qitsiriok."

Next day the men draped the heavy wet skins over the upside-down framework to try them on for size. To cover the bottom and the ends of the umiak, the transverse widths of five and a half skins were required. Six skins were taken into the tent for sewing together into one long piece.

SEWING

In the tent a strong beam was set up horizontally between two tent poles about four feet off the ground. For each seam the edges of two skins were brought together about a round wooden peg several inches long. By a string looped around the skins over the peg and tied to the horizontal beam, the heavy skins were raised to a comfortable working position. Fifteen women sat on low boxes around the skins, down the centre of the tent, and assembled them in a day. The outer side of the skins was to be



A. Lashing on the inner stringer



B. Covered with a tent against dogs



Ainalik's wife inspecting the skins on the framework

the outer side of the cover. The threads had been prepared previously by braiding together in pigtail fashion three thin strands of sinew from the back of the white whale.

The waterproof stitch is hard to describe in words. The seam is double, the skins overlapping about half an inch. The thread is embedded in the skin, which was perhaps almost one-quarter inch thick while fresh and swollen with moisture; the thread does not pass right through the skin from surface to surface. In sewing the first seam, a lap of about half an inch wide is left free on the border of one of the skins. To make the second seam, the work is reversed to put the free lap on top. The lap is drawn tight, and its edge is sewn to the other skin using the same stitch as before. The diagram above explains the stitch. Each hole at the skin surface is used twice, as the needle is put through a previous hole whenever possible. The assembled skins were then stored for the night in an old 45-gallon fuel drum.

STRETCHING THE COVER ON THE FRAMEWORK

On a drizzly Thursday the cover was draped over the upside-down framework which was raised a couple of feet off the ground on blocks of scrap lumber. The cover was drawn tightly onto the framework by long thongs running from gunwale to gunwale through slits in the ragged edges of the skins. The excess skin at the bow was trimmed off.



Sewing the skins together

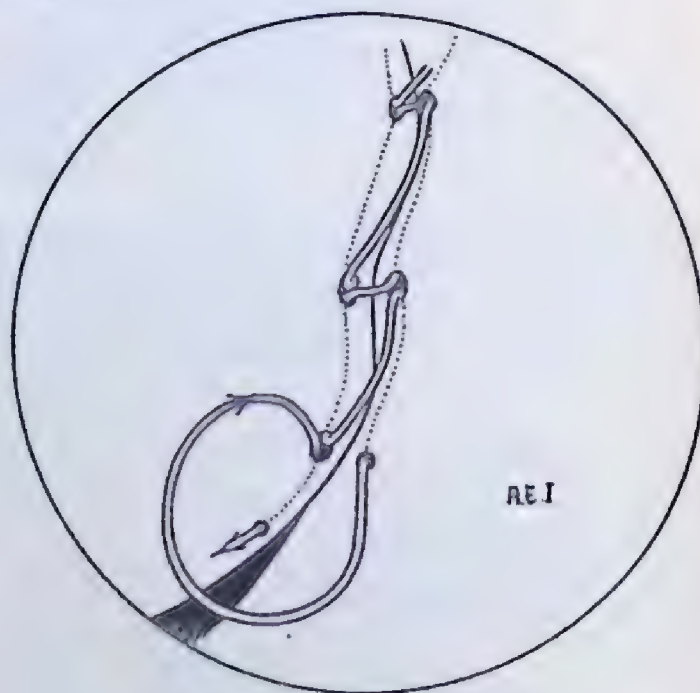
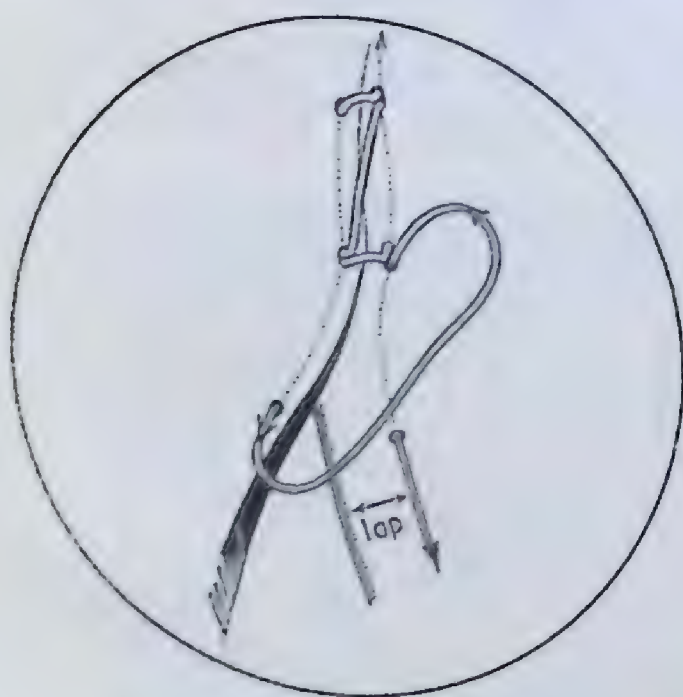


FIGURE 9. Waterproof stitch

PATCHING THE GAPS ALONG THE GUNWALES

Then a dozen women sewed patches into the gaps along the gunwales, again making waterproof double seams. The sewing was almost the same as for assembling the skins, except that both seams were made from the same side. On the first seam the free overlap was left on top on the sewer's side of the work. When the lap was folded under and sewn down



A. Stretching the cover over the frames



B. Filling the gaps along the gunwales

in the second seam, a raised welt resulted. It took the excess skin trimmed off the stem and another skin to fill all the gaps. Thus seven skins were used to cover the umiak.

LASHING THE COVER TO THE FRAMEWORK

The boat was turned right-side-up for the lashing of the cover to the framework. The women finished sewing some of the seams of the patches along the gunwales while the men busily fastened the cover to the inner stringer. To reinforce a seam at the bow as it crossed the fore-foot, a narrow patch was sewn over it and jokingly called the mouth of the umiak. In the edges of the cover, paired holes were cut with pocket-knives. A long line was laced through these holes and looped around the inner stringer. Three different methods were used; different helpers had different ideas on how to do the job, and Ainalik did not insist on any special way. Ainalik lashed the cover on in the same way as in west Greenland umiaks (see Birket-Smith, 1924: 255 illus.). The temporary lines which had been first used to pull the cover on the frame were removed. Flippers and snouts had been trimmed off during the filling of the gaps along the gunwales. In the final lashing of the cover, when the line would run out, another piece was tied to its end making the lashing continuous for large sections along the gunwales.

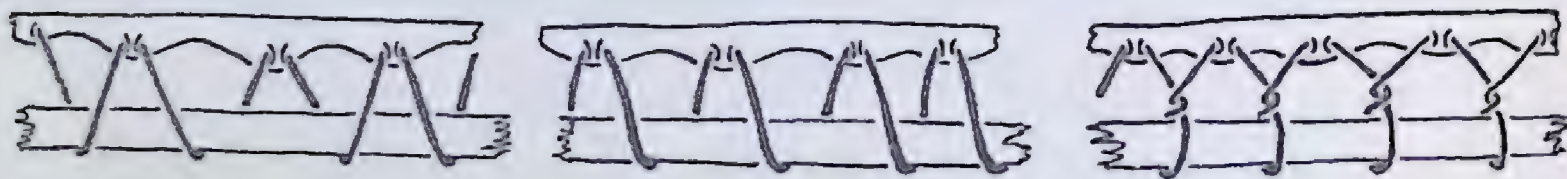


FIGURE 10. Different ways in which the cover was lashed to the inner stringer

When the covering of the frame was completed, two gudgeons, or rudder "eyes," of filed and drilled caribou antler were driven through small holes in the skin cover into the stern-post which had been bored previously. They were secured with lashing inside the boat.

To keep the fragrant new umiak out of reach of the dogs, it was put on the roof of the Roman Catholic Mission's workshop.

The next day four women had to sew several patches on small holes and potential holes. As the cover dried tight, weak spots such as the mammary glands in a skin from a pregnant udjuk had developed into holes. After several days of drying, the seams in the cover were sealed with thick, highly rancid seal oil, "pujak."

Accessories

RUDDER

When the umiak was covered, work began on the rudder. The rudder-stock, or its shaft, was 44 inches long, made from a stout piece of driftwood hatched to a cross-section 4 inches square. The 16-inch-wide rudder blade



A. Lashing on the cover



B. Reinforcing the seam at the fore-foot



Ainalik driving in a rudder-eye

was made by skilfully lashing the rudder-stock together, with three squared pieces of wood 16 to 21 inches long. Antler pintles, or "hooks," to fit the gudgeons, or "eyes," in the stern were ingeniously mounted in the rudder-stock. Ainalik had seen rudder pintles and gudgeons of metal only. The curved tiller was 40 inches long and 2 inches square where it was fitted through a square hole cut in the top of the rudder-stock. Another hole was bored in the stock below the tiller to hold a line from the stern of the umiak, a safety measure to keep the rudder from being lost if it came loose in rough seas. The head of the rudder-stock was bound to prevent splitting.

The last half of August was spent in rebuilding and covering an old kayak in order to use the valuable udjuk skins left over from the umiak before they rotted completely.

OARS

In the early part of September, Ainalik worked alone making a pair of heavy oars 11 feet long. The shafts, or looms, were hatcheted from 4- by 4-inch lumber. For the blade, two pieces of wood $3\frac{1}{2}$ inches wide and 40 inches long were lashed to the sides of the shaft, which was tapered at the blade



Out of dogs' reach

to a $3\frac{1}{2}$ -inch width and a 2-inch thickness. At the other end the shaft was carved down into an easily-grasped, round handle, 8 inches long. Below this handle two grooves, 22 inches long by $1\frac{1}{2}$ inches wide by 1 inch deep, were chiselled along opposite sides of the square shaft. These grooves were grips for rowing.

The thong rowlocks were made from two pairs of heavy udjuk line 10 to 15 feet long. They were staggered: the right rowlock was between the second and third thwarts, and the left between the third and fourth. For each rowlock a pair of thongs were arranged in opposed loops around the oar, tied to the framework at the inner stringer by the thwarts and tightened by being twisted with sticks 2 feet long.

SAIL

In mid-September the sealskin sail was made. The mast was 11 feet tall with a diameter of 4 inches at the base tapering to 2 inches at the top. A foot from the top, a slot was cut for an ivory sheave, or wheel, $1\frac{1}{4}$ inches in diameter, over which the halyard was to run in raising and lowering the sail. The yard which was $7\frac{1}{2}$ feet long was made from two poles 2 inches thick, scarfed together. The sail was to be as wide as the umiak's beam amidships. A wider sail might cause tipping, according to Ainalik. Light, pliable caribou skins would have made a fine sail, but there were no caribou. Harp seal skins would have been serviceable, but the people wanted them for mitts, boots, and even thongs. Udjuk skins were too heavv



A. Making the rudder



B. The finished oars and the mast at Ainalik's house

and valuable to use in a sail. Silver jar skins were too expensive in 1960. Finally an old mouldy kayak cover of ringed seal skins was patched and trimmed into a sail $6\frac{1}{2}$ feet wide by $7\frac{1}{2}$ feet tall. A long udjuk line served as a halyard. Two more lines at the bottom corners of the sail were the sheets. The mast was stepped in a square slot cut in the keel and tied against the back of the second thwart.

Performance

On Saturday, September 24th, the icebreaker "N.B. MacLean" came to Ivuyivik. The umiak was carried through the settlement down to the beach by eight men and launched, stern first, for its maiden and only voyage out to the icebreaker which was to take it south. Five men manned the boat. Before entering, they washed the sand off their boots. The rowlock thongs were looped around the oars. The rudder was hooked on the stern. And the umiak quickly pulled away from the crowd on the shore. The bay was glassy calm. The ponderous-looking oars were surprisingly easy to handle; the thong rowlocks were very efficient. In the calm water the umiak was quite stable. If anyone leaned over the side, it tilted; but never was it in danger of tipping over. Without a heavy load the boat skimmed along the surface. Through the translucent skins only three or four inches of dark water could be seen rushing by above the bilge stringers. The crew was enthusiastic, and the umiak soon crossed the bay to the icebreaker. The sail was not tested because the wind was negligible.

Of the north Alaskan umiaks, Murdoch says,

These boats are exceedingly light and buoyant, and capable of considerable speed when fully manned. They are very "quick" in their motion and quite crank till they get down to their bearings, but beyond that appear to be very stiff (1892:335).

Of Greenland umiaks, Crantz says that though they cannot sail as fast as European boats, they can be rowed much faster (1767, I: 149).

Authenticity

AUTHENTICITY OF FORM

During construction, the Ivuyivik umiak, when compared with other umiaks, in general, in published sources (see Part I), appeared to be eccentric in several respects.

- (i) In the first place the framework was built in an upside-down position starting with the gunwales, thwarts, and thwart blocks. In published accounts, if the matter is mentioned, the framework is said to be built right-side-up, starting with the keel and the stem- and stern-posts (Bogoras, 1904, photo facing p. 127; Birket-Smith, 1924: 253-5; Hornell, 1946: 156-9). Other descriptions of the framework which do not mention its position usually start with the bottom parts (Boas, 1888: 527; Hawkes, 1916: 69; Holm, 1914: 42-3; Murdoch, 1892: 336-7; Thalbitzer, 1914: 377-8; Turner, 1894: 253-6).

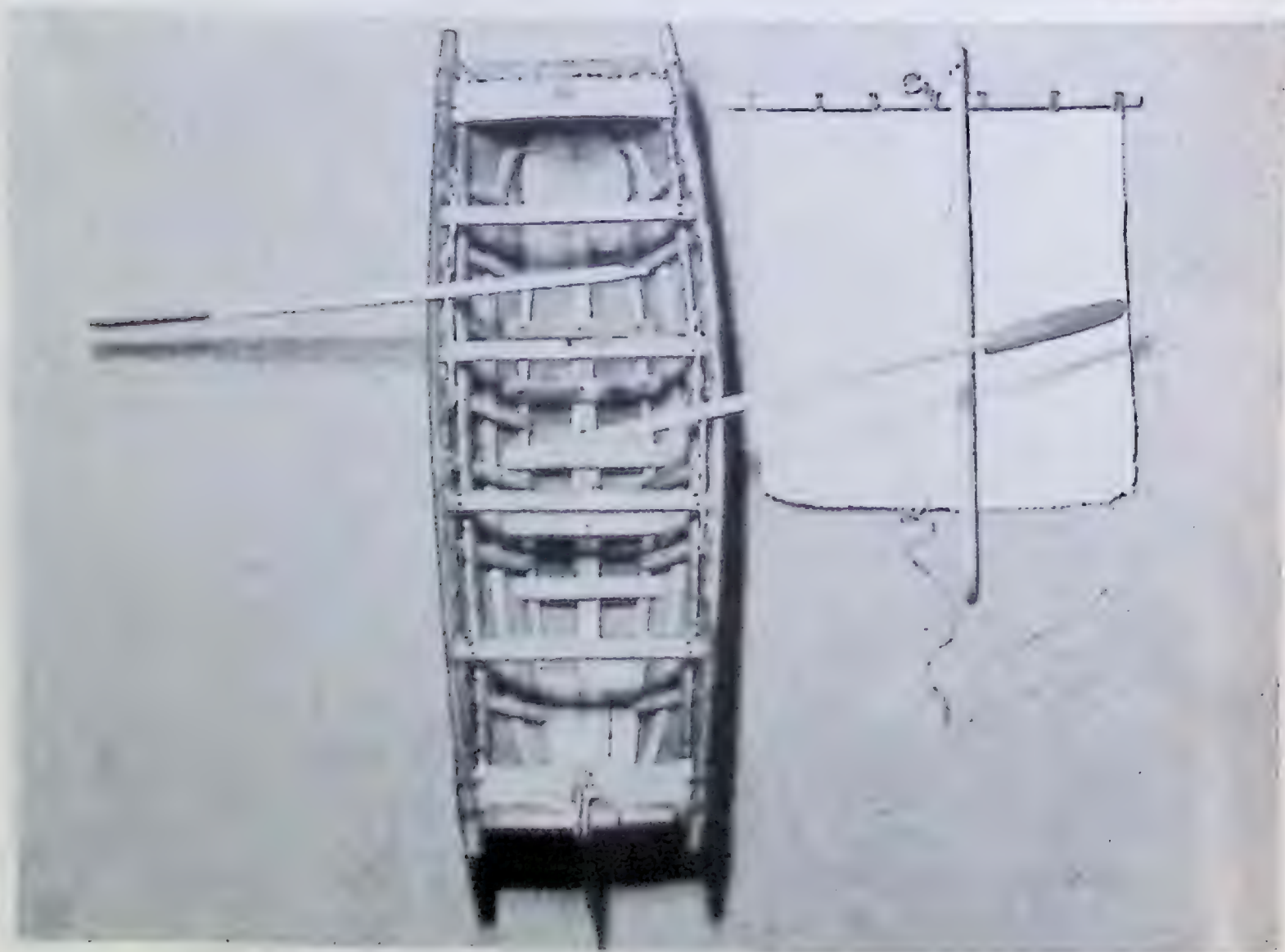
- (ii) The thwarts are fitted on top of the gunwales and form bumps along them in the edge of the skin cover. Illustrations of umiaks always show a smooth gunwale surface. Usually the thwarts are placed below the gunwales. Now Hawkès says, regarding the Labrador umiak,

Three or four thwarts fit into the top rail, and reinforce the end-pieces. They may serve as seats, but the men usually stand up to handle the long oars (1916 : 69).

But it is unlikely that this description means that the thwarts used to be fitted on top of the gunwales with half their thickness protruding into the skin cover. In a 21-inch model, collected in 1914 from Chesterfield Inlet but probably of Hudson Strait origin, four thwarts are lashed into notches on the inner surface of the gunwales leaving the top surface smooth (National Museum of Canada, specimen IV-C-761).

- (iii) Two-thirds of the ribs project a couple of inches above the gunwales causing more unevenness in the top edge of the skin cover.
- (iv) The cover is secured at the ends of the boat by being lashed to an inner rail as at the sides. In recorded umiaks of the region, the cover thong is laced through holes bored along the outer edge of the thwart block, leaving the inner margin clear, to serve as a

PLATE XXX



Umiak from Chesterfield Inlet (Nat. Mus., Canada IV-761)



Another view of Plate XXX

seat. However, in the Ivuyivik umiak it was perhaps impractical to bore holes in the narrow thwart blocks because they would have been weakened.

- (v) The six primary floor-timbers and corresponding pairs of side ribs are joined directly together at the bilge stringers. In recorded umiaks a rib is sometimes placed next to a floor but is not fitted directly to it. At Ivuyivik, because of the upside-down method of construction, it was almost a necessity to fit the primary floors and ribs directly together into continuous U-shaped frames for rigidity during the addition of the bilge stringers.

Two other features are atypical in comparison with recorded umiaks but seem acceptable as special local modifications. The grooved bilge stringers which efficiently hold the ends of the floor-timbers and ribs are not found elsewhere. An old informant, Tayara,¹ who as a young man had seen umiaks on the south side of Hudson Strait, said some boats had grooved bilge stringers and some had not. The separate blocks of wood connecting the keel to the stem- and stern-posts, the fore-foot, and the heel, also are sound local solutions to the scarcity of suitably large driftwood for stem- and stern-posts. Ainalik knew the names of these parts, and Tayara said they were all right. These two special features add interest to the Ivuyivik umiak as local variations in construction.

¹ See "Some historical notes," p. 75.

The overall dimensions and shape of the Ivuyivik boat are acceptable in view of the great variation in the size and shape of umiaks. The 19-foot 10-inch length fits within the 10- to 25-foot range given for Ungava Bay (Turner, 1894: 235). Hawkes says, "The Labrador umiak is usually about 25 feet long . . ." (1916: 69). The boat built by Ainalik compares favourably with Low's description of the Hudson Strait umiak.

In shape it roughly resembles a large square-ended punt, being often twenty feet and over in length, by six feet or more across the middle section, and tapering towards the ends to about half that width. It is made quite deep, and is capable of carrying a very heavy load. Usually two or more families use a umiak to transport their goods from place to place, and as the poles and Big sealskin covering of each tent weigh upwards to half a ton, the capacity of these boats can be realized.

The framework is heavy, and the sides are kept in place by a number of cross thwarts, which also serve as seats for the rowers. The covering is made from the large skins of the Big seal (*Phoca barbata*), sewn together in a manner similar to the covering of the kayak. This craft is rowed by the women, usually with an old man as steersman. It is propelled by rude oars made from small trees, the handle being formed from the thick part, while the blades are made by attaching strips on two sides of the smaller end. Two or more women pull each oar, which vary in number from two to four (Low 1906 : 156).

Old Tayara, mentioned previously, remarked that the Ivuyivik boat was a little shorter than was customary. Also some of the umiaks he had seen were not so wide on the bottom as Ainalik's boat was, but a wide bottom was a sign of a good worker; narrow ones were easier to make. The Ivuyivik boat is wide, especially at the ends, but wideness was a feature of umiaks in the Hudson Strait. The largest of five umiaks Lyon saw at the Savage Islands measured 25 feet by 8 (1884: 41).

The use of European tools and dressed lumber does not matter so much in this question of formal authenticity, because both were probably used in many of the umiaks reported in the published literature.

Practical people like the Eskimo at Ivuyivik would not worry very much over the authenticity of the boat that Ainalik built so long as it worked well in the water. For example, the high thwarts would not be changed unless they were found to be inefficient, perhaps uncomfortable as seats, or dangerous by keeping the weight of passengers too high, or bad for the skin cover into which they protrude. Perhaps half a century ago conservatism kept all umiak-makers conforming to an established pattern within the limitations of available materials and economic means. But probably the traditional form was followed, because it was considered the most efficient. Deviations were perhaps acceptable as long as they did not mar performance. In a present-day example, the five kayaks now in use at Ivuyivik have grooved bilge stringers except for one, which was built by a neighbouring group to the south. As this lack of a groove did not detract from performance, the deviant kayak was accepted. Yet Ivuyivik kayak-makers will continue to groove the bilge stringer because they consider it a superior method of construction. The groove works well in Ainalik's umiak too, eliminating the need for notched ends on the floor-timbers.

For the Eskimo at Ivuyivik it seems that in the case of utilitarian objects of material culture, efficiency is more important than conformity to tradition. Thus the traditional umiaks were abandoned when stronger

wooden boats, some with power, could be procured. The kayak, so aesthetically pleasing and so "Eskimo" to the white man, will also be eagerly given up for canoes with outboard motors when the Ivuyivik men can afford them. Parkas are now made from European materials, caribou being unavailable, but they are cut to the traditional pattern which is more efficient than European patterns. Sealskin is not used, partly because it freezes stiff. The sharp pointed peak on the hood seems unnecessary, but this traditional feature is preserved, perhaps precisely because it is more a matter of social fashion than mechanical efficiency.¹

An umiak at Ivuyivik is now essentially a non-utilitarian object. Perhaps for this reason old Tayara was concerned with its conformance to tradition, its authenticity, and he qualified his approval of Ainalik's boat very slightly by saying it was all right since it was finished, "namatopaluk pijarigami." Authentic or not, Ainalik's boat would have been put to use at Ivuyivik if the white men did not want it. Another craftsman, Tivi, even fancifully said that if suitable lumber were on hand it might be all right to build a modified umiak for local use with nails instead of the time-consuming lashings.

Ainalik's boat is basically a Labrador umiak. Several modifications of details make it partially unauthentic as a museum piece representing a typical Hudson Strait umiak at the beginning of this century.

CAPABILITY AND SUITABILITY OF AINALIK AS AN UMIK-MAKER

So far, little consideration has been given to the man directly responsible for the form of the Ivuyivik umiak, Ainalik. In certain works of art, as, for example, in European painting after the Renaissance, the individual person who created the work is most important. In such personalized art, authenticity is established by specifying the person who conceived the design or form. In some other works of art the individual creator is anonymous. For such personally anonymous art to be authentic, the responsible individual must have belonged to the culture and the art tradition to which the work of art belongs. Now the umiak is primarily a utilitarian boat, not an art object, but taken out of its natural context of daily Eskimo life and placed in a museum it is regarded in some ways as a work of art. In a museum, the umiak is appreciated as a marvellous creation of Man, as an ingenious device of Eskimo culture to aid in living in a difficult environment, as an expensive and rather rare specimen of historic value, and perhaps even as an aesthetically pleasing object, though few would exclaim over the beauty of Ainalik's boat. In a museum, authenticity becomes more important than utility. To be authentic a museum umiak must first conform to the traditional pattern of umiaks actually used by an Eskimo society, and second, its creator must belong to that society, or its close descendant or relative, and be proficient in its cultural tradition of umiak-making. On both points the Ivuyivik umiak is partially unauthentic. On the first point the eccentric features of construction have been described; on the second, Ainalik's qualifications for umiak-building have to be considered.

Ainalik, the craftsman responsible for the Ivuyivik boat, belongs to the Eskimo culture on the south coast of the Hudson Strait which had umiaks

¹ Some say the peak now keeps the parka cover from falling off the head, but most seem to regard it as being non-utilitarian.

earlier in this century. He was born into a society which used umiaks. During the last several decades, under the impact of western civilization this society's culture changed a great deal, especially in material technology. After the non-metal tools, utensils, and weapons, the umiak was one of the first items of material culture to be displaced by products of European origin. From the recollections of the older informants, the date at which umiaks fell into disuse in the area can be roughly ascertained as around the middle of the second decade of this century. The oldest man at Ivuyivik in 1960 was Ainalik, who is listed as being born in 1902. (The accuracy of birth dates in the Eskimo disc list is hard to establish for older people.) He could remember only one umiak, which he saw when he was a boy about four feet tall. He recalled jumping up on the bottom of an overturned umiak, by which memory he decided that the height of the umiak was only about two feet. As he did not remember seeing umiaks when he was older as a youth, they must have disappeared around the middle of the second decade. The frame of a useless umiak would be quickly broken up for other things like kayaks, sleds, tent poles, harpoon shafts, fuel, and so forth. A man born in 1905 recalled travelling in an umiak as a boy but could not remember details of its construction. At Sugluk, Tayara, who claims he was born earlier than his listed birth date of 1898, saw many umiaks in use and even captained his father's boat at Wakeham Bay¹ in his youth. He recalled a dozen umiak-owners by name. The three oldest women at Ivuyivik, listed as being born in 1894, 1897, and 1901, all remembered umiaks. The eldest, Akreagok, had worked on the covering of umiaks and could remember the way to skin the bearded seal for the cover. Hawkes, who studied the Labrador Eskimo in 1914, wrote that the umiak was still in use at Wakeham Bay (1916: 68).

Ainalik would not have been able to build the boat that he made in 1960 by relying only on a small boy's observations, though with his interest in traditional crafts he may have taken better note of the construction details of an umiak than most other persons. Tayara said that Ainalik remembered one boat better than he himself could recall the construction of many. Now Ainalik's father, an able craftsman, had made model umiaks which Ainalik remembered well. In addition, Ainalik consulted with Tayara before beginning construction in 1960.

Judged by his work, Ainalik was not fully proficient in umiak-building. At the outset he said he was not sure about the width of the boat. Perhaps the rather wide beam he gave to the Ivuyivik boat partially follows the fat proportions of a model made by his father. Yet he knew the essential structural form of an umiak, and he had full knowledge of some details, such as the joining of the stem- and stern-posts to the keel and the oars. However, because he had not fully learned the cultural tradition of umiak-building, he had to figure out his own construction methods. He probably used his full knowledge of kayak construction in building the umiak framework upside-down with grooved bilge stringers and sets of ribs and crosspieces joined directly together. Indeed, two young men noticed the umiak's general structural similarity to a kayak and called it the "big kayak," "kaya-aluk." In this connection it is interesting that at Angmagsalik in 1906, four old hunters maintained that the original

¹ See "Some historical notes," p. 75.

kayaks resembled umiaks with the bottom built of straight transverse pieces between two vertical parts instead of the curved ribs of present Greenland kayaks (Thalbitzer, 1914: 384). Without a complete knowledge of his craft, Ainalik probably made or accepted innovations more freely for uncertain parts. The ribs were lashed to the gunwales in several different ways. The cover was lashed to the inner stringer in three different ways. Also the inner stringer was continued transversely at the stem and stern to hold the cover lashings. If the method worked for the gunwales, why not use it at stem and stern as well? In a model he made earlier, Ainalik had the cover secured by lashings passing through holes drilled in the thwart blocks, but he also had the cover lashings threaded through holes in the gunwales. The model was more authentic than the actual boat in one feature, its thwarts, which are fitted into notches cut in the inner surfaces of the gunwales and thus do not protrude into the skin cover (National Museum of Canada, specimen IV-B-745). In making the rudder pintles and gudgeons of antler, Ainalik improvised skilfully, for he knew only of metal counterparts. He selected antler as being stronger than ivory or bone.

In conclusion, it may be said that Ainalik was born into a culture and society that had umiaks, but these disappeared when he had acquired only a partial knowledge of their construction. Consequently at Ivuyivik in 1960 he built a boat whose form was only partially authentic. However, as Ainalik is a capable Eskimo craftsman, he made a fully workable boat.¹

Economic and Social Aspects of the Ivuyivik Umiak

IVUYIVIK

To see the umiak built by Ainalik in its economic and social context, it is first necessary to briefly describe the community at Ivuyivik. In the summer of 1960 Ivuyivik was a small community of 99 Eskimo and one Oblate missionary from Belgium, situated on the northwest tip of Quebec province at the western entrance to the Hudson Strait. The settlement was on the east side of a rocky and hilly peninsula, roughly a mile wide by two miles long, in a little sheltered vale facing a deep bay half a mile wide by one and a half miles long. During the summer the Eskimo lived in ten tents and eight houses of wood, canvas, and cardboard. The missionary lived alone in the twenty-two-year-old Roman Catholic Mission. The Eskimo were Anglican. They spoke very little English. A new federal government day school was built in 1959 and opened in the autumn of 1960. The Eskimo's economy was based on sea-mammal hunting (white whale, walrus, and many seals) and fox trapping, supplemented by a

¹It may be asked why I did not correct unauthentic features during construction and have the Ivuyivik umiak built according to the illustrated descriptions of Boas and Turner, of which I had photocopies. Now, as the Oblate missionary said, if Ainalik was to be ordered to build according to Boas and Turner, then the umiak may as well have been built by white men down south save for the practical difficulties of getting udjuk skins and white whale sinew. As it was, Ainalik was in charge of the umiak construction with certain ideas on how to do the job. If ordered to follow the ideas of others, he probably would have complied for the sake of money. But he was happier working as an independent craftsman making his own decisions. I was afraid to impose my will over Ainalik. Also I was not sure whether he might not be working according to a specialized form of umiak peculiar to Ivuyivik, of which I was ignorant.

little fishing, bird and egg hunting, handicrafts, family allowance, relief, and odd bits of wage labour. In 1960 there were 27 adult men, of whom four were slowing down a bit as hunters through age. Five teenage youths were gradually becoming active in hunting and trapping. In summer the basically marine economy operated with a fleet of five kayaks, one unpowered canoe, one powered whaleboat, and two aged Peterhead boats. In addition, the mission had a small whaleboat with a 10 h.p. outboard.

The Eskimo community was unstratified and unsegmented. Marriages for the past decade at least had largely been locally endogamous; all except one of the families were related by blood or marriage. The community had considerable group solidarity. An Oblate missionary said that the salient characteristic of Ivuyivik, in comparison with three neighbouring communities, was that it was closed in on itself, presenting a solid front against intruding outsiders such as the Roman Catholic priests. In economic dealings with the whites, some of the people seemed rather mercenary, trying to get as much as possible, though giving as little as they could in return, with varying success.

ECONOMIC CO-OPERATION

The Ivuyivik people constantly co-operate in economic activities, most of the time on a small scale. For the actual shooting of a seal or trapping of a fox, the individual alone is usually sufficient. However, on hunting and trapping trips, two or three usually work together for efficiency, safety, and sociability. Travelling by dog team and camping in tent or snowhouse are difficult to carry out alone. Should some accident occur, it might be fatal to be alone; once in a while a man is fished out of the sea by a companion. Generally, it is the close relatives who co-operate. Brothers often go trapping together. Father and son do the same. Non-kinsmen may also trap together, but this is rare at Ivuyivik since most persons are related to each other in one way or another.

Of the products of economic activities, food is shared, but money, i.e., credit with the Hudson's Bay Company, generally is not. Hospitality is well developed. Visitors are regaled with substantial quantities of tea and bannock, and if meat or fish is eaten, all who are present join in. Yet each is expected to do his best in the business of making a living; each household (dwelling unit) is largely self-sufficient. Efficient industrious workers are respected. The division of game usually includes only those who co-operated in the hunt. Skins for trade or clothing belong to the hunter who made the kill. White whales are generally divided among the entire community because they are big animals, 15 to 20 feet long, usually requiring the co-operation of many men in their capture, hauling to the settlement, and beaching. But several white whales, taken in the autumn by a man and his teenage son alone, at a camp several miles away, were not distributed among the whole community. Walrus taken in the annual hunts by Peterhead boat around Nottingham and Salisbury islands used to be divided among the entire community for winter dog food. However, in 1960 only one Peterhead got walrus; these were not distributed to the crew of the other Peterhead as this latter boat had worked for the whites for three years running and had never shared the resulting monetary earnings.

Kayaks and the small canoe were owned and operated on a more or less individual basis, though there was much lending. A young man usually used a kayak made by his father or uncle. The frame was made by one craftsman, sometimes with an assistant. A cover was sewn by a dozen matrons, half of them sisters, working together in a sociable atmosphere. A canoe or a small outboard motor would be bought and maintained by one energetic individual. Peterheads carried a kayak or canoe on board for embarking and disembarking purposes and for hunting and fishing with gill nets. Kayak or canoe might also be transported by Peterhead to a distant hunting locality, such as Eric Cove about 25 miles away.

Co-operation on a larger scale involving more than two or three men was notably associated with the two ancient Peterheads and a leaky powered whaleboat salvaged from Mansel Island, because such co-operation was economically efficient. In launching or beaching these large wooden boats, all available men assisted. On hunting trips, each Peterhead usually had a crew of about ten men. To go walrus hunting a dozen men would pool their resources for fuel and food supplies. In 1960 to go fox trapping to the south before the sea was frozen, a third of the men with several sleds and dog teams were transported by a Peterhead to the beginning of flatter country, thus avoiding the steep hills and cliffs on the sled routes around Ivuyivik. When a Peterhead would go to the neighbouring settlement of Sugluk, it would carry almost thirty passengers going visiting and shopping. Most basically, the purchase of a large wooden boat and its inboard engine requires the co-operation of several men or more. As both of the Ivuyivik Peterheads needed new, or newer, engines, contributions were made towards their purchase in co-operative accounts at the Hudson's Bay Company in the names of the boats, though because of continual personal debts the engine funds were not growing too steadily. Moreover, as both Peterheads had leaky rotting hulls, the men were conscious of the need for a good big boat to replace them, but with limited monetary income they could not raise the necessary sum to buy a new boat. The decked-in whaleboat salvaged from Mansel Island was even leakier than the Peterheads, and its one-cylinder Acadia was constantly stopping. The purchase of a new boat, using the proceeds from the umiak as a nucleus for money from taxes, was the incentive used by Ainalik in getting co-operation for the construction of the Ivuyivik umiak.

FINANCIAL ARRANGEMENTS OF THE IVUYIVIK UMIK

Ainalik wanted to get a large whaleboat in exchange for the umiak; as the white men wanted an Eskimo boat, he wanted a boat of the white men. He explicitly stated this desire in a letter written in syllabics at the beginning of 1960 but never mailed to the museum. He wrote that, as there was little game, all the men would have to hunt in the spring for the udjuk skins for the umiak and that the men would hunt for udjuk only if they were to get a white man's boat in return, because undoubtedly they would not simply accept money which, once divided, would be no great sum. Then he wrote that the umiak would be built only if the monetary proceeds were put into the purchase of a boat. If the money from the umiak was insufficient to buy a boat, the balance of the price would be paid with foxes.

Because of the language barrier and differences of opinions, the kind Oblate served as interpreter and intermediary in the transactions that were necessary in building the umiak. In the spring, Ainalik said that he did not like to talk through the missionary without the presence of other men, because, as he put it, he became confused. The missionary, for his part, said it was hard to catch the real sense of Ainalik's speech because he stuttered and talked in an indirect roundabout fashion. Probably this difficulty in communication was caused by a difference of aims: the missionary wanted to keep the umiak's price within the sum (\$1,000) set by the museum, whereas Ainalik wanted enough money for an 18-foot whaleboat (about \$1,500-\$2,000). The missionary was familiar with the acquisitiveness of Ainalik, while the latter perhaps thought that the missionary might prevent him from getting the maximum possible amount of money. As the construction progressed, liberal sums were paid for necessary materials and aid (thread-making and sewing), and the matter of the amount to come was not brought up by Ainalik, and requests were made by him directly or through the missionary without the moral support of witnesses. As the umiak neared completion, he did talk in a fashion that made the missionary think that in the back of his mind he still wanted a whaleboat in exchange. But the missionary also thought that perhaps Ainalik was not so much trying for a higher price as he was worried that perhaps the museum's representative had exhausted the funds available for the umiak. As it was, the final sum paid to Ainalik (\$785) was liberal by local standards, though perhaps not so generous as southern prices for skilled custom work.

Foxes were abundant in the autumn, and prices were not bad at \$15 for a prime white. At Christmas, Ainalik talked about buying a Peterhead boat, not a new one of course, with the money from the umiak and the pooled resources of his four adult sons (two of whom were working for wages since the fall), his more docile son-in-law, an energetic nephew, two bachelor sons of old Oshuadjuk, a very able hunter, and the catechist. If it is supposed that a used Peterhead in good condition costs around \$3,000 to \$4,000, each of the ten men mentioned by Ainalik would have to save about \$200 to \$300, a hard task for a hunter at Ivuyivik even in a good fox year. Ainalik's plan to get a Peterhead was ambitious. Perhaps he settled instead for a small powered boat that was available at Sugluk for about a thousand dollars.

ARRANGEMENTS FOR THE UDJUK SKINS

Ainalik did not have the capital to provide supplies for udjuk hunts by Peterhead or to buy several udjuk skins outright. Nor did he have the authority to command others to contribute skins to the umiak. And he wanted to keep the eventual profit from the umiak intact. Still, he probably could have collected sufficient skins on his own in one way or another had it been necessary. The Oblate missionary probably would have lent his sturdy whaleboat and outboard motor for udjuk hunting, or Ainalik might have gotten a few skins on promises of shares in a boat to be bought with the payment for the umiak. As it was, the white men sent a representative (the writer) who covered the expenses of getting skins.

When the ice left the bay at Ivuyivik, an udjuk hunt by Peterhead was first proposed openly by the second son of the retiring owner of the "Aivek." He was essentially a spokesman for the "Aivek" crew, and he fetched his father to decide upon some unforeseen matters. Previously, indirect inquiries had been made about the best time and place to hunt udjuk and the willingness of either Peterhead to co-operate. The missionary helped much in securing co-operation. Probably Ainalik talked up the matter as well. With the "Aivek" it was agreed that the writer would supply the fuel, food, and ammunition for the hunt in return for the skins taken.¹ During the hunt the "Aivek" hoped to get coal and lumber from an old shipwreck on north Mansel Island, but, as it turned out, the way was blocked by ice until the second week in July.

After the udjuk hunt was finished in early July, the three adult sons of the "Aivek's" owner asked for \$10 for each udjuk skin, as had been offered in May at Sugluk to the east. This request was refused, because the writer thought that the crew had received fair returns for its expenses—paid hunting in the meat of the udjuk, three udjuk skins, ducks, eggs, and several ringed seals. He did not know until later that the ringed seal skins were not kept by the crew but were buried with the udjuk skins. The three brothers loudly argued for payment until told that they could have their money, but that it would be deducted from the price for the umiak. At this the brothers withdrew their demands. Here the "Aivek" group established a claim on Ainalik's profit from the umiak. It would have been interesting to see what obligations Ainalik owed to the "Aivek" group. After the umiak was covered, the owner of the "Aivek" took four of the leftover udjuk skins to re-cover his kayak, much to the chagrin of the writer who was trying to cover another kayak framework for the meseum.

THE SMALL GROUP THAT BUILT THE FRAMEWORK

Description

Ainalik, Iyaitok, and Oshuadjuk worked together on the framework from mid-July to mid-August. During the third week of July, little work was done because of the annual visit of the supply ships. During the following two weeks, most of the framework was assembled. In these two weeks the three men most distinctly formed a small special work group within the Ivuyivik community. In the second week of August, the tiny group seemed submerged in the crowd of men and women helping to cover the framework. After the covering, the three craftsmen made the rudder, but Ainalik and Iyaitok did most of this work; Oshuadjuk was rather superfluous. Then Oshuadjuk left the group, and the other two continued to work together on a kayak for a further week and a half. After the kayak was finished, Ainalik worked alone on the umiak's oars and sail. The work group of Ainalik, Iyaitok, and Oshuadjuk was very transitory as well as very small.

On a typical day Ainalik would arrive first, perhaps about 8:30 A.M., and begin removing the lumber heaped around the framework to protect the new lashings from the dogs. Several minutes later, Oshuadjuk and Iyaitok would arrive independently. At this hour the settlement still

¹ See appendix for expenditures on the udjuk hunt.

seemed to be asleep; the women were not yet washing clothes in the brook, and only the odd child was out playing. Even the dogs dozed on, enjoying the summer holidays. Any men who had gone hunting had departed earlier, for the night was still short. Gathered about the umiak, the three craftsmen would talk a while. Ainalik did most of the talking outlining the work to be done. Oshuadjuk might give his views, usually simply repeating at greater length what had already been said. Iyaitok would stare at the ground, apparently listening attentively, and grunt now and then in acknowledgment. Soon the men were at work.

All three worked diligently. Fast, competent work was admired; clumsiness might bring mild mockery. Ainalik and Iyaitok both worked quickly and well; Oshuadjuk was slower and less sure. When some part required the co-operative efforts of two men only, Ainalik would work with Iyaitok and leave Oshuadjuk to his own devices. Oshuadjuk showed no resentment, and never did he speak ill of the other two. Sometimes Ainalik would comment on Oshuadjuk's relative inefficiency, making fun of him, but never to his face. For Iyaitok, Ainalik had only good words, praising him as a very fine man, "angoti piyoyopaluk," who worked well and was never angry. Iyaitok sometimes made fun of Oshuadjuk's bumbling, but he would also mock Ainalik's stutter and greed for money, "p- kinauyak p- pigomavunga," behind his back of course.

At each new step in the construction, the three men would consult together. Ainalik would decide how the work was to be done. He was definitely in charge, but his direction was so informal that he did not at all appear to be a "boss" ordering his men around. He never got angry at his helpers, who, after all, were working without immediate pay and were grown men besides. Curses and threats were unnecessary. His instructions were followed without hesitation, for he was the only one who knew how to make an umiak. Much of the work required little explanation, being straightforward and similar to the construction of a kayak, which all three craftsmen could make well.

Though no one specialized in any particular task to the exclusion of others, each man tended to concentrate on work suited to his abilities. Ainalik tended to direct the boring of holes for the lashings, making the important holes himself. Iyaitok put in more of the lashings than Ainalik or Oshuadjuk. Lashing required strength and at times agility, as when they were made from inside the upside-down frame. Oshuadjuk seemed to spend the greatest part of his time cutting out parts that required steady effort but no special skill. For hours he would split, saw, and hatchet the worst driftwood into ribs. He also grooved the bilge stringers with a hatchet. However, all three men often did tasks more frequently performed by others. Each showed some independent initiative in doing what had to be done without waiting for a word from the other two. With these three steady workers the construction of the framework proceeded with speedy efficiency.

Sometimes spectators watched and perhaps even lent a helping hand or teeth to soften thongs. Young people in particular might be invited to bite the hard dry udjuk lines. Spectators were left to make their own inferences as to what was being done, since Ainalik did not trouble to explain the work to them. When a couple of younger men in discussing the frame supposed that the narrower end was the bow, Ainalik did not correct them.

Nor did Iyaitok. Oddly enough the often garrulous Oshuadjuk also said little to the onlookers. Once in a while some one might ask for confirmation of an inference he had made and receive only the briefest of replies from Ainalik, who perhaps had little to say about umiaks, knowing little himself.

At noon the three workmen had lunch, invariably a stew, with the museum's representative and any other chance guests, usually Ainalik's grandson and two small boys of Iyaitok, who often came around to silently watch their fathers at work. The three men would eat before the others, since there were no dishes other than the pot cover and a frying pan. Then they would have a mug of tea or coffee and a smoke. There would be a little indifferent conversation for ten or fifteen minutes before the men went back to work. Some days they had supper together as well. There were also breaks in the morning and afternoon for tea and coffee. Coffee was necessary because Iyaitok was one of those peculiar people of the south Hudson Strait who could not drink tea. A dozen adults at Ivuyivik claimed that tea gave them headaches and drank only coffee or molasses, or even plain hot water in emergencies. Ainalik often said that coffee is good for working, while tea is better for walking. Oshuadjuk preferred tea. On this matter of tastes it might be added that Ainalik was noted as being the only man at Ivuyivik who did not smoke. This left him idly clasping his hands while Iyaitok and Oshuadjuk had their smokes after coffee and tea.

Joking among the three craftsmen was always verbal; there was no physical horseplay, for that was restricted to undignified younger people. Iyaitok would tease young girls by poking and embracing them but never the men. Joking was rather rare during work, because funny situations were few. Ainalik made humorous remarks the most often of the three, usually about incongruities. For example, it was odd to deliberately use poor, crooked, worm-eaten driftwood when there was dressed lumber on hand. Then Ainalik might say that the very bad was very good. His wit was most appreciated by himself. Much of the Ivuyivik humour seemed (to me) to be about minor physical misfortunes that befell others, such as falling off a boat into icy water or off a sled flying down a long slope; about personal peculiarities and sex, subjects which were relatively scarce in the construction of the umiak framework. On the whole, the work proceeded silently and seriously, though not unpleasantly.

When the day's work was done, the three craftsmen separated and went each to his home. Apart from the umiak-building there was little regular interaction between them; they did not visit each other very frequently because, for one thing, they were not close relatives and for another they had seen enough of each other at work.

Reasons for co-operation in building the framework

Ainalik wanted assistants because certain parts of the framework could not readily be made by himself alone, and much of the repetitive work such as shaping and lashing the many ribs could be done by others leaving him free for more special tasks. Also, the framework had to be built quickly before the udujuk skins rotted too much. Iyaitok and Oshuadjuk co-operated willingly, though they received no immediate payment for their efforts. They wanted to share in the ownership and operation of a good large wooden boat. (Iyaitok and Ainalik held no "shares" in the two existing

Ivuyivik Peterheads, nor in the deeked-in whaleboat salvaged during the summer from Mansel Island. Oshuadjuk had a share in the Peterhead "Nanuk" fifteen years earlier, but in 1960 he seemed to have no active interest in the "Nanuk," although his sons did.)

It was explicitly stated that Ivuyivik needed a good new wooden boat, but it was difficult to judge the strength of an altruistic motive in the three men. They were not stingy, not even the acquisitive Ainalik, but their chief reason for working on the umiak was probably self-gain in wealth and prestige. It was profitable for them to put their energy into the umiak since they were not so active in hunting as the younger men, and besides, mid-summer was a slack season, especially for men without boats (Oshuadjuk's kayak was mainly used by his sons). They enjoyed making a complex traditional artifact, but sentiment for the traditional culture, a desire to do things in the old Eskimo way, seemed a secondary reason for co-operation on the umiak. The main reasons were efficiency and material gain.

Some personal characteristics

Ainalik apparently chose his two assistants on the basis of capability, social suitability, and personality, rather than kinship.¹ They were more or less social equals. They all held no special social prominence through wealth, i.e., ownership of a boat; or through religious office, i.e., Anglican catechist, though Iyaitok unofficially was a sort of fourth-ranking catechist. All three were old by Ivuyivik standards, and all had thinning hair, the reason they could make things, as Ainalik, the baldest, would joke.

Ainalik was the oldest man at Ivuyivik, being listed as 57 years old, but his energy belied his age. In spring he would be out at dawn sealing from the ice edge as early as the younger hunters, or earlier. He always seemed to be working at some task or another; he appeared to be about the most industrious man at Ivuyivik and the best traditional craftsman. He did not deal with engines, and his fine soapstone carvings appeared frozen and immobile. Physically he was of average stature, sturdily built, and in good health. In dress he appeared to be the most traditional at Ivuyivik, always in skin boots and olive drab melton pants, wearing a white parka cover decorated with only two dark brown stripes. Although he smiled cheerfully and constantly made witticisms, he was not regarded as an easy-going good-humoured individual. Rather, he was known for his acquisitiveness, which was pronounced enough to be remarked upon, even among the rather aggressively materialistic Ivuyivimiut. And though he rarely, if ever, exploded in open rage, on occasion he did become angry, as he himself said. The Ivuyivimiut constantly say it is bad to be angry; if someone is angry, he isn't happy. A fine man was one who did not become angry. Ainalik had two married daughters and six sons, of whom four were married and independent. Living with him were his cheerful wife, a young grandson, a tall teen-aged son, an adult son who became the school maintenance man in the autumn, and a recently married daughter and her husband.

Though Oshuadjuk was a couple of years younger than Ainalik, he was regarded as more aged because he looked, talked, and acted like an old man. Physically he was small and had no great strength. But he was still

¹ Iyaitok and his family were not related to any of the other Ivuyivik people as far as I know. Oshuadjuk's wife was the older sister of the wives of two of Ainalik's sons.

active enough to hike ten miles over hills to go fishing with his big sturdy wife or to build himself a frame house with a canvas roof. Yet his repetitious tedious talk and slight slowness in following a conversation gave the impression of age. In work he was not so quick and sure as Ainalik or Iyaitok. He carved peculiar walrus lying stiffly on a sled, head held high as if on watch. Oshuadjuk was a mild man who smiled easily and openly, who was never malicious in conversation or deed, who was compliant and unaggressive. Yet he was not admired but was ridiculed as a bumbling old man who talked nonsense. Even his guileless smile or vacant silence might be mocked by an irreverent child. Age alone did not bring respect. Oshuadjuk had three grown sons, of whom one was married and had four children. All the sons continued to live with their parents. A dozen other children had died.

Iyaitok was considered to be a fine man, easy to get along with and never angry. He was a short stocky man, "angotikadlak," active and merry except when he suffered from his frequent stomach-aches. At about fifty years of age he was the youngest of the three frame-builders and the one with the most hair. He had three sons and two daughters, ranging in age from seven to seventeen. His wife was blind. Only three winters previous he had come to live at Ivuyivik on police orders. Until then he had lived a hundred miles down the coast at an isolated spot bearing his name, for the last few years alone and in want. He was a capable craftsman. As a hunter he was slowing down a bit, leaving the trapping to his eldest son in the autumn of 1960. Though not aggressively acquisitive, he managed to buy a pre-cut plywood-covered house with accumulated family allowances. He was one of several unofficial catechists at Ivuyivik. Though he was the source of much amusement, joking and clowning, paying mock court to the girls, at times he was silent and serious, apparently depressed. And he would angrily scold his playful boys when they were annoying. He did not fear to give negative opinions of others, but he did not gossip or slander at length. He was well-liked, perhaps because he was either amusing or neutral, not a dominant person like Ainalik nor ridiculous like Oshuadjuk.

ANALYSIS OF THE FRAMEWORK BUILDING GROUP

Originally the intention was to analyse the group that built the framework according to the conceptual scheme presented by Holmans in his book *The Human Group* (1950). However, as such an exposition for so small and transitory a group as that of the three framework-makers would be too tedious and trivial, only the salient social aspects of the work group will be touched upon.

Holmans studies the mutual dependence of three elements in the behaviour of all small human groups: "activity," what the group members do physically; "interaction," the sheer association between group members; and "sentiment," the internal state of the body ranging from the biological to the psychological, drives, emotions, feelings, affective states, attitudes (1950: 34-8). The total social system is studied under two headings: the "external system," the state and interrelations of the three elements as they solve the problem of the group's survival in its environment, the relationships between the group and its environment (1950).

90-1); and the "internal system," the elaboration of group behaviour, simultaneously arising from and reacting upon the external system (1950: 109). In addition, Holmans takes into consideration the "norms" of a group, the mental ideas of its members as to ideal behaviour, what men should do (1950 : 123).

The characteristics of the framework-building group were largely dependent on the environment, social and physical; the external system far overshadowed the internal. The social environment was the community of Ivuyivik and the larger outside world of North American civilization which fostered an institution called the National Museum of Canada. The museum's desire to possess an umiak and the Ivuyivik community's need for money to buy a better large wooden boat first created the framework-building group, bringing together Ainalik, the craftsman with the know-how, and his assistants, Iyaitok and Oshuadjuk, chosen for their personal suitability. These personal characteristics originated in the social environment. The physical environment also had some influence since only in a maritime setting would Eskimo build umiaks or want large wooden boats. Not only did the framework group's existence depend on the environment, but also the form of its activities, interaction, and sentiment was largely governed by the environment through the personalities and norms of the three craftsmen. The framework itself was both the direct reason for the existence of the group and the product of its activities. The co-operative framework-building activities made the men interact together and curtailed their interaction with other groups during working hours. The three men were distinguished as a special group by working on the framework, having refreshments and meals together, and by having major claims in the eventual payment for the umiak. When the framework was finished, the group dissolved.

The group activities and interactions did not develop strong sentiments that would elaborate interaction for the sake of sociability. Without the framework-building activities, interaction between the three men dropped back quickly to the rather low level usually current between them in the larger community. Even while the framework was being built, interaction outside the work setting did not increase appreciably. As for sentiment, very little existed for the framework group itself; sentiments, positive and negative, current in the group sprang from interpersonal relations developed in the Ivuyivik community. The small framework group did exist as a distinct little social system, but it had little autonomous life of its own; its activities, interactions, and sentiments were all largely dependent on the group's environment. There was negligible elaboration of an internal system. Perhaps if Ainalik later buys a whaleboat, the framework group will have a sort of delayed reaction upon the external system by creating closer economic and social relationships between the three craftsmen and their families within the Ivuyivik community.

The interaction in the small group existed by virtue of the co-operative nature of the framework-building activities. The form of the interaction was mainly determined by the norms held in the community about social behaviour between older men who were equals. One explicitly stated norm was that it was bad to become angry. So the three craftsmen never showed anger against one another. Ainalik never ordered his helpers about

with curses and threats. If annoyed by Oshuadjuk's relative ineptness, he never showed his annoyance to Oshuadjuk. Care not to shame another man in public was a more diffusely stated norm. The three men never openly criticized one another. It was considered presumptuous to tell another man what to do unless he was definitely subordinate. Related to this norm was the attitude of minding your own affairs, even to the extent of letting others make mistakes that could have been corrected. Thus Ainalik's direction was more like minimal instruction than authoritative ordering. For their part, the assistants followed his lead with complete compliance since a man was not to be contradicted, especially a man with superior knowledge. The dominance-subordinance relationship implicit in the framework-building was acknowledged without dispute in the work activities and related interactions for the sake of efficiency and good feelings, but minimized in interpersonal sentiments and purely sociable interactions to maintain social equality.

A norm that affected the form of the work activities was that of efficient craftsmanship. To fulfil this ideal, the three men worked as quickly and as well as they could without frivolity or slackening. Idle play was not for adults. Each tended to concentrate on tasks for which he was best suited. When some work demanded the best skill available or the combined efforts of two men only, Oshuadjuk was left out for the sake of efficiency. This norm also affected sentiment: Ainalik liked Iyaitok better than Oshuadjuk. And Ainalik interacted more with Iyaitok than with Oshuadjuk, keeping him on for an extra week and a half to assist with the rebuilding of a kayak. The mutual dependence of sentiment, interaction, and activity is here evident. However, the initial given is the norm of efficiency and its embodiment in the three craftsmen.

The characteristics of the group can also be viewed from the standpoint of the three personalities involved, including their approximations of the norms described above. But the account is already too repetitive to review again the activities, interactions, and sentiments of the tiny and transitory framework group in terms of the personalities involved. Only their importance in the selection of assistants by Ainalik will be reiterated. By their docility and essential good-naturedness Iyaitok and Oshuadjuk were ideal to work under the direction of the strong-willed Ainalik as they were all social equals. In contrast with Iyaitok and Oshuadjuk were two other older men who had the mechanical ability and, possibly, the technical interest to work on the umiak but were less suitable to be assistants to Ainalik for a number of reasons. Their personalities were more forceful and dominant. Through their aggressive vigour and desire to be important they had attained greater social prominence than Ainalik, though they were in no sense socially superior creatures in the egalitarian society at Ivuyivik. One was the leading owner of a Peterhead boat. His boat was in a rotten condition, but he was not eager to try for a share in a better boat in which Ainalik would be the principal owner. He had the time in midsummer to work on the umiak, but he probably did not want to be subordinate to Ainalik. Another possible helper was the official and leading catechist who did indeed assist in the umiak-building when he had little else to do. He had once owned a Peterhead and loved to be a leader, but being poor with a large family to

support he really could not pretend to be a big man of the community. He too probably did not want to work for long as a subordinate to Ainalik. As it was, he could ill-afford to spend even a month of the comparatively slack summer on work without immediate material return, for he was in debt, deeper than the average. Had these two dominant persons been the assistants, the building of the framework might not have proceeded as smoothly as it did with the mild Oshuadjuk and the good-tempered Iyaitok.

To summarize this partial analysis of the small framework-building group, it might be said that the external system was of paramount importance, but the internal system was quite undeveloped. Activities and interactions were confined to the work itself and to related coffee breaks and lunches; sentiment did not seem to develop appreciably beyond the level already existing between the three men through residence in the same small settlement. Little loyalty was felt for the group. Indeed some negative sentiment may have developed from the work activities and interaction. When the framework was completed and covered, Ainalik appeared glad to be rid of Oshuadjuk's trivial conversation and relative inefficiency. He was pleased with Iyaitok, of course, and probably had greater positive sentiment for him through the co-operative work on the frame. However, Iyaitok said during the rebuilding of the kayak that he was tired of Ainalik's perpetual talk about money. Such sentiments would not foster the consolidation and elaboration of the group. Perhaps time is essential for the development of the internal system. It took only a month to build the umiak framework.

CO-OPERATION ON THE COVERING OF THE FRAME

All the Ivuyivik matrons, married or widowed, who were able to work on the umiak covering, did so. Most of the fifteen women who sewed together were related to one another, five being sisters from one family. All were over thirty years old, except for a daughter of Ainalik. Three other matrons, including two more sisters of the five mentioned, were sick. One of them missed the sewing so much that she asked for a Polaroid picture of the work in the tent and the next day watched her sisters sewing outdoors, reflected in a mirror held up above her beside the high window. Three younger housewives had infants to care for. Another was halfway in her pregnancy. One woman was blind. Unmarried girls did not join in the sewing. Nor did a young married woman who as yet had no children.

The skin dressing and sewing was a sociable affair with gallons of tea, coffee, or molasses, and piles of bannock and pilot biscuits. As far as the women were concerned, it was a community affair. When a kayak was covered at Ivuyivik, the owner supplied the working materials and the refreshments. In the case of the umiak, which was regarded as belonging to the white men rather than to Ainalik or Ivuyivik, the women were paid as well as given refreshments, which included tobacco, for Ainalik said that they wouldn't work if they didn't get something in return and he couldn't command them to work. Still, there was such a tradition of communal work on boat covers that the women seemed quite eager to sew the umiak cover, even if they would never row in it around Ivuyivik.

All the men available, about eight, helped in placing the heavy skins on the framework, in lashing the cover in place, and in putting the new boat

out of reach of the dogs. A couple of shouts for men—"Angotimiik!"—brought the helpers. A package of tobacco for each gave token thanks. Mutual aid when needed was expected, and men co-operated readily in work that required the strength of many. If the work took time, tea and coffee would be served as in the beaching of the Peterheads.

Some Historical Notes

The informant, old Tayara, who lived at Sugluk in 1960, had seen many umiaks at Wakeham Bay as a young man. He claimed to be older than his official age of 62 years, counted from his disc list birth date, 1898. As mentioned before, his judgment of the correctness of the umiak built by Ainalik was a qualified approval, expressed in his broken Eskimo (for the benefit of the white man) as "Tamna kanoingitok piyarigami" freely, "This one has nothing wrong with it because it is finished." Compared to some boats he had seen, it was a bit short. The longitudinal timbers used to be scarfed if necessary. Some boats had narrower bottoms, which required less work, less wood, less skin (also a skin could more easily stretch from gunwale to gunwale), and perhaps were stronger if the bilge stringers were scarfed together from shorter pieces. As for grooves in the bilge stringers, Tayara said some had grooves and some had not. At least one side stringer was used to keep the skins off the rough ribs. The first pieces of wood to look for in building were the stem- and stern-posts. If possible, the stern-post was made in one piece with the keel from a tree trunk that curved at the root. Apparently there was great variation in construction, particularly

PLATE XXXII



Umiak at Wakeham Bay (A. P. Low, Geological Survey)

at the ends, depending on the wood and skins available. For a locality in which specially shaped wood was scarce, Ainalik's separate fore-foot and heel at the ends of the keel were all right. The number of ribs depended on the wood available. They could have been more numerous than the twenty-six used in Ainalik's boat. Rudders were used on all umiaks that Tayara remembered. Special, short rudders were used in shallow rivers. Sails were made of the thin breast skins of udjuks, according to Tayara. The mast was stepped between the bow and the centre. Baggage was loaded in the bow and stern with the rowers in between, nearer the bow. The two oars were both placed between the same thwarts but were staggered. Most important, Tayara said the umiak was built upside-down, just as Ainalik built the museum's boat. If so (and I am a bit doubtful), the upside-down method of umiak-building was special to the south side of the Hudson Strait.

In Tayara's recollections, umiaks were mainly used for travelling. Formerly there was much more movement in the Hudson Strait region; all summer some families were on the move along the south coast. For long trips the whole family and the dogs (six comprised the maximum team formerly) were loaded into the umiak. With a good following wind filling its sail, the umiak used to tow kayaks which were tied together with paddles, harpoon shafts, or poles (cf. Curtis, 1930: 20). Dogs were used to track the boat along level, even shores. It was possible to go from Sugluk or Wakeham Bay to Fort Chimo and return in the same summer. Tayara himself stayed two years at Chimo. The Hudson Strait was crossed from the south side starting from Cape Wolstenholme or the Digges Islands and going via Nottingham and Salisbury islands to Cape Dorset on the southwest corner of Baffin Land. The crossing could be made only when there was some ice to calm the strait; otherwise, the water was too rough for umiaks.¹ Therefore, a return crossing could not be made in the same year as ice conditions would not be right again until the next summer. Tayara recalled at least two men, Qiqchualuk and Itigaoyak, who came across the strait from Dorset by umiak and did not return, dying at Sugluk. One old woman of Sugluk crossed to Dorset by umiak and returned on a white man's ship.

Tayara knew the names of thirteen umiak-owners along the coast from Sugluk to Payne Bay (and perhaps also Hopes Advance Bay)—around Sugluk and Wakeham Bay: Nauyak, Ituapagak, Tayara himself, his father Padlaya who had another umiak, Anushuq, and Yogalak; at Diana and Payne Bay: Iqshutok, Qaqotoq, Paliagaluk, Ananak, Aupaluk, Sakiarak, Udlatuagusiq. There should be twice as many, said Tayara, at least twenty easily.

In speculation on the ratio of umiaks to people, twenty to twenty-five umiaks may be divided into a population guessed to be about 240 from Cape Wolstenholme to Payne Bay by taking Low's estimate of 190 from Wolstenholme to Cape Hopes Advance (1906: 134) and adding a blind guess of 50 for Payne Bay. The purely conjectural result, based on shaky figures and disregarding major fluctuations in population (see Elton, 1942: 350-1), gives a ratio of one umiak to ten or twelve persons, say, two nuclear families, at the beginning of this century. Nowadays there seems to be one

¹ "The passage across the strait is considered very dangerous, and therefore is rarely undertaken. The natives do not utter a single word during the long passage; they believe a destructive gale might be conjured up if they did" (Boas, 1888: 463).

large powered wooden boat to about two or three times as many persons. Indeed, at Wakeham Bay in 1960 the Eskimo owned no large boats at all, having been unable to replace their old boats when they wore out. Wider co-operation extending beyond close kin seems more necessary for the purchase and maintenance of a large powered boat, notably the Peterhead, than for an umiak, particularly when fox prices are low and other substantial regular sources of monetary income are lacking for most men while increasing amounts and varieties of civilized goods are bought. For those few who have regular wage employment, such as the various handymen, store helpers, and interpreters, a small rowboat or canoe with an outboard is sufficient, as they do not have to hunt and trap extensively for a living. Also in the present large settlements centred around white establishments, long hunting trips and moves are not so frequent nor so necessary as before perhaps, though in the west Hudson Strait region it is still desirable to go by Peterheads to Nottingham and Salisbury islands to hunt the seasonal concentration of walrus. Expense seems to be the main reason for the decreasing number of large powered boats.

In the memories of Tayara and Ainalik, no actual hunting was done from the umiak itself because it was too slow and noisy. It was used for transportation to places with game. For walrus the hunters used to go by umiak to the island where the herd basked, but they harpooned the huge beasts on foot on the shore. In the water, walrus were harpooned from kayaks. White whales were also pursued in kayaks; umiaks were too slow, and the oars were too noisy.¹ According to Ainalik, the big bowhead whales were hunted from kayaks.² Only one kayak would approach a surfaced whale, for if two approached at first, the whale would dive. After the whale was harpooned, all the kayakers would approach with their killing lances. As the dead whale's mouth would fall open, they closed it by tying. Large rivers such as the Payne were ascended by umiaks for the caribou hunts inland. Caribou hunters from the Payne Bay and Fort Chimo area often met in the interior with hunters from Povungnituk on the east side of Hudson Bay.

Only a few folklore items about umiaks were heard. One story relates that when an umiak was going along, the young men who followed in kayaks used to playfully throw their bird darts over the boat. From the spear throwers, the darts would fly as fast as arrows. Once a man was thus teasing the women in an umiak when the dart hit his young wife.

¹ As noted before, Bons says umiaks were paddled for whaling (1888: 499). They were used more frequently than kayaks in whaling (*Ibid.*)

² Parry briefly describes whaling by kayaks (1824: 509).

RÉSUMÉ

Au cours de l'été de 1960, un umiak esquimau du Labrador, grande embarcation recouverte de peau, a été construit à Notre-Dame d'Ivugivic à l'extrémité nord-ouest de la province de Québec pour le compte du Musée national du Canada. Le présent rapport est une étude à la fois générale et détaillée des umiaks, qui situe l'umiak d'Ivugivic dans l'histoire et la culture esquimaudes.

Le rapport se compose de deux parties. La première est une description comparative de l'umiak, fondée sur des publications traitant de sa distribution, de la variation et de la constance de sa forme et des matériaux employés à le fabriquer dans différentes régions, de ses usages économiques et de certains de ses aspects sociaux et magico-religieux. La seconde partie s'attache uniquement à l'umiak construit à Notre-Dame d'Ivugivic. L'auteur y décrit les diverses étapes de la construction, soit la réunion des peaux de phoque et du bois, la construction et le recouvrement de la charpente et enfin la fabrication des avirons, du gouvernail et de la voile. Il traite brièvement du comportement de l'embarcation sur l'eau. Puis il aborde la question d'authenticité. Plusieurs caractéristiques apparemment typiques de l'umiak d'Ivugivic sont évaluées à la lumière d'autres communications portant sur d'autres umiaks et passées en revue dans la première partie du rapport. Finalement, l'auteur étudie certains des aspects économiques et sociaux de la construction de l'umiak d'Ivugivic, en portant une attention toute spéciale au petit groupe de trois artisans, Ainalik, Iyaitok et Oshuadjuk, qui ont construit la charpente. Le rapport donne, en annexe, un vocabulaire de termes esquimaux dont on se souvient à Ivugivic et qui s'appliquent à diverses parties de l'umiak; il donne aussi la description des méthodes suivies pour la chasse au phoque barbu et l'historique des umiaks le long de la côte sud-détroit d'Hudson au début du siècle.

BIBLIOGRAPHY

- ANDREWS, ROY C.
1916 Whale hunting with gun and camera. New York.
- BALIKCI, ASEN
1961 A new umiak or Eskimo women's boat for the National Museum of Canada. The Arctic Circular, 1960, vol. XIII, no. 2, p. 58-9. Ottawa.
- BIRKET-SMITH, KAJ
1924 The country of Egedesminde and its inhabitants. Meddel. om Grønl., LXVI. Copenhagen.
1929 The Caribou Eskimo. Report fifth Thule expedition 1921-24, vol. V, 2 vols. Copenhagen.
1941 Early collections from the Pacific Eskimos. Nationalmuseets Skrifter, Etnografisk Raekke, I, p. 121-63. Copenhagen.
1953 The Chugach Eskimo. Nationalmuseets Skrifter, Etnografisk Raekke, VI, Copenhagen.
1959 The Eskimos (revised). London.
- BOAS, FRANZ
1888 The Central Eskimo. 6th Ann. Rept. Bur. Am. Ethnol. p. 399-669. Washington.
1901-7 The Eskimo of Baffin Land and Hudson Bay. Bull. Am. Mus. Nat. Hist., vol. XV. New York.
- BOGORAS, WALDEMAR
1904 The Chukchee. Jesup North Pacific Expedition, vol. VIII, Pt. 1, Mem. Am. Mus. Nat. Hist., XI. Leiden and New York.
- BURG, AMOS
1952 *North Star* cruises Alaska's Wild West. Nat. Geog. Mag., vol. CII, p. 57-86. Washington.
- COLLINS, HENRY B.
1951 Excavations at Thule Culture Sites near Resolute Bay, Cornwallis Island, N.W.T. Ann. Rept. Nat. Mus. Canada, Bull. 123, p. 49-63. Ottawa.
- CRANTZ, DAVID
1767 The history of Greenland, vol. I. (Trans. from the High-Dutch). London.
- CURTIS, EDWARD S.
1930 The North American Indian, vol. XX. Norwood.
- DURHAM, BILL
1960 Canoes and kayaks of Western America. Seattle.
- EGEDE, HANS
1745 A description of Greenland (Trans. from the Danish). London.
- ELLIS, HENRY
1748 A voyage to Hudson's Bay by the *Dobbs Galley* and *California* in the years 1746 and 1747. London.
- ELTON, CHARLES
1942 Voles, mice and lemmings. Oxford.
- FREUCHEN, P.
1935 Field notes and biological observations. In Mammals, Rept. fifth Thule expedition 1921-4, vol. II, no. 4-5, p. 68-278. Copenhagen.
- HAWKES, ERNEST W.
1916 The Labrador Eskimo. Mem. 91, Geol. Surv. Canada, Anthropol. Ser. No. 14. Ottawa.

- HOLM, G.
1914 Ethnological sketch of the Angmagsalik Eskimo. Meddel. om Grønl., XXXIX, p. 1-147. Copenhagen.
- HOLMANS, GEORGE C.
1950 The human group. New York.
- HORNELL, JAMES
1946 Water transportation, origins and early evolution. Cambridge.
- JOCHELSON, WALDEMAR
1908 The Koryak. Jesup North Pacific Expedition, vol. VI, Mem. Am. Mus. Nat. Hist., X. Leiden and New York.
1933 History, ethnology and anthropology of the Aleut. Washington.
- KNUTH, EIGIL
1952 An outline of the archaeology of Peary Land. Arctic, vol. 5, no. 1, p. 17-33. Ottawa.
- KNUTSEN, WILLIE
1941 Desolate Greenland, now an American outpost. Nat. Geog. Mag., vol. LXXX, p. 393-406. Washington.
- LETHBRIDGE, T. C.
1938 Umiak: The European ancestry of the "Women's Boat." Mariner's Mirror, XXIV, p. 318-28. London.
- LOW, A. P.
1906 The cruise of the Neptune, 1903-04. Ottawa.
- LYON, GEORGE F.
1824 The private journal of Captain G. F. Lyon, of H.M.S. *Hecla* during the recent voyage of discovery under Captain Parry. London.
- MALINOWSKI, BRONISLAW
1922 Argonauts of the Western Pacific. London.
- MARY-ROUSSELIÈRE, GUY, O.M.I.
1960 A remarkable specimen of prehistoric Eskimo art. Eskimo, vol. 54, p. 10-14. Churchill.
- MATHIASSEN, THERKEL
1927 Archaeology of the Central Eskimos. Rept. fifth Thule expedition 1921-24, vol. IV, 2 vols. Copenhagen.
- McLAREN, I. A.
1958 The economics of seals in the eastern Canadian arctic. Fish. Res. Bd., Canada, Arctic Unit. Circ. No. 1. Montreal.
- MORGAN, AUDREY, and FRANK MORGAN
1951 Alaska's Russian frontier: Little Diomedé. Nat. Geog. Mag., vol. XCIX, p. 551-62. Washington.
- MUNOZ, JUAN
1954 Cliff dwellers of the Bering Sea. Nat. Geog. Mag., vol. CV, p. 129-46. Washington.
- MURDOCH, JOHN
1892 Ethnological results of the Point Barrow Expedition. 9th Ann. Rept. Bur. Am. Ethnol. Washington.
- NELSON, E. W.
1899 The Eskimo about Bering Strait. 18th Ann. Rept. Bur. Am. Ethnol. Washington.
- PARRY, WILLIAM EDWARD
1824 Journal of a second voyage for the discovery of a north-west passage from the Atlantic to the Pacific. 1821-22-23. London.

PORSILD, MORTON P.

- 1915 Studies on the material culture of the Eskimo in West Greenland. Meddel. om Grønl., LI. Copenhagen.

RAINEY, FROELICH G.

- 1942 Discovering Alaska's oldest Arctic town. Nat. Geog. Mag., vol. LXXXII, p. 318-36. Washington.
1947 The whale hunters of Tigara. Anthropol. papers of the Am. Mus. Nat. Hist., vol. 41, pt. 2. New York.

SARYTSCHEW, G.

- 1807 Account of a voyage of discovery to the northeast of Siberia, the frozen ocean and the northeast sea, vol. II. (Trans. from the Russian). London.

SPENCER, ROBERT F.

- 1959 The North Alaskan Eskimo. Bur. Am. Ethnol. Bull. 171. Washington.

THALBITZER, WILLIAM

- 1914 Ethnological collections from East Greenland (Angmagsalik and Nualik). Meddel. om Grønl. XXXIX, p. 319-755. Copenhagen.
1923 Language and folklore. The Ammassalik Eskimo. II. Meddel. om Grønl., XL, p. 113-564. Copenhagen.

TURNER, LUCIEN M.

- 1887 On the Indians and Eskimos of the Ungava district, Labrador. Trans. Roy. Soc. Canada, V, sec. 2, p. 99-119. Montreal.
1894 Ethnology of the Ungava district, Hudson Bay territory. 11th Ann. Rept. Bur. Am. Ethnol. Washington.

VANSTONE, JAMES W.

- 1962 An archaeological collection from Somerset Island and Boothia Peninsula, N.W.T. Royal Ontario Museum - University of Toronto, Art and Archaeology Div., Occas., Pap. 4, p. 1-63. Toronto.

WEYER, EDWARD M.

- 1932 The Eskimos. New Haven.



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189. Canada. National Museum.
Bulletin 189, 1963.

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